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Southern Medical Association, Thirtieth Annual Meeting, Baltimore, Maryland, November 17-20

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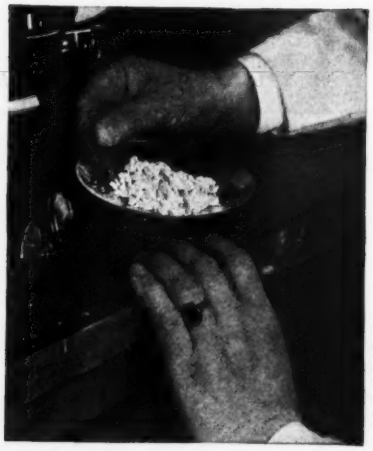

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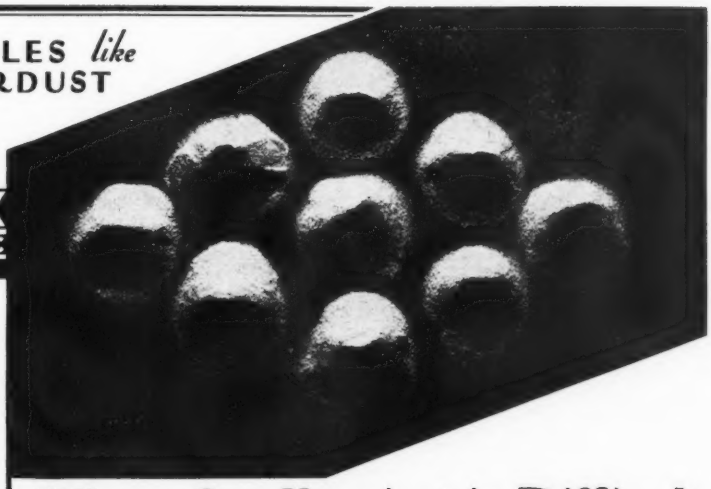

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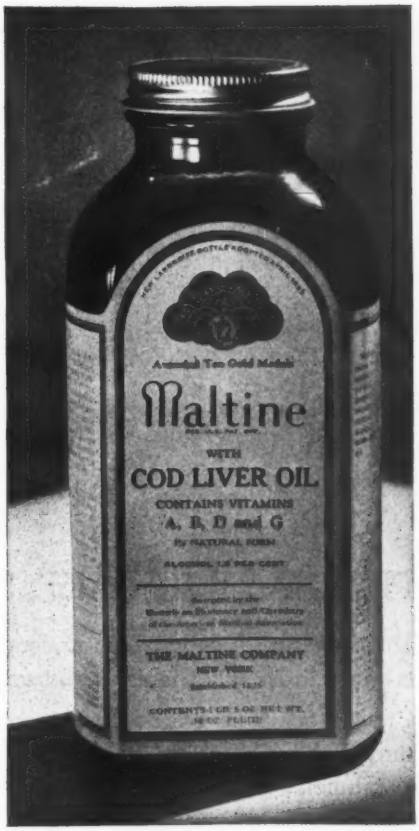

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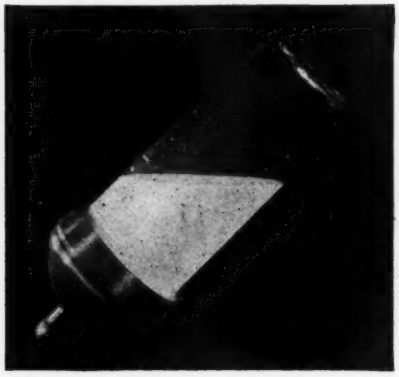

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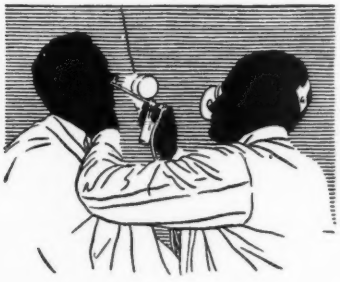

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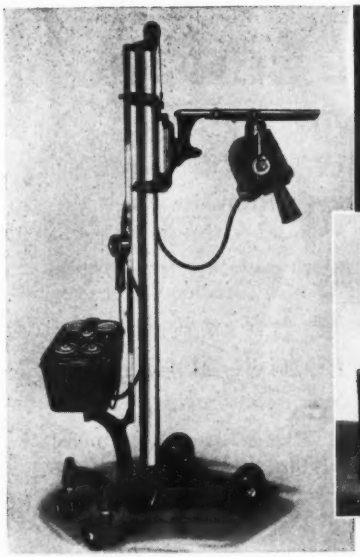

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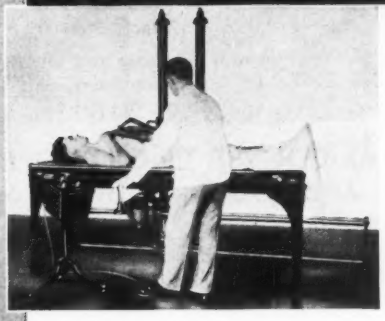

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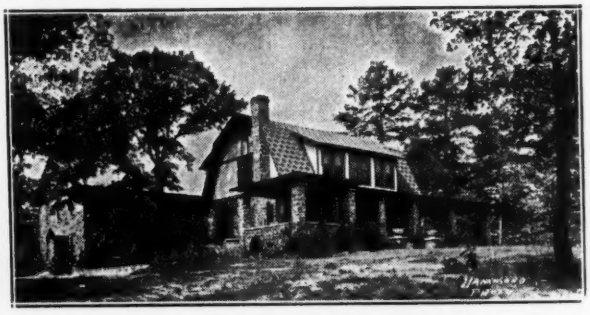

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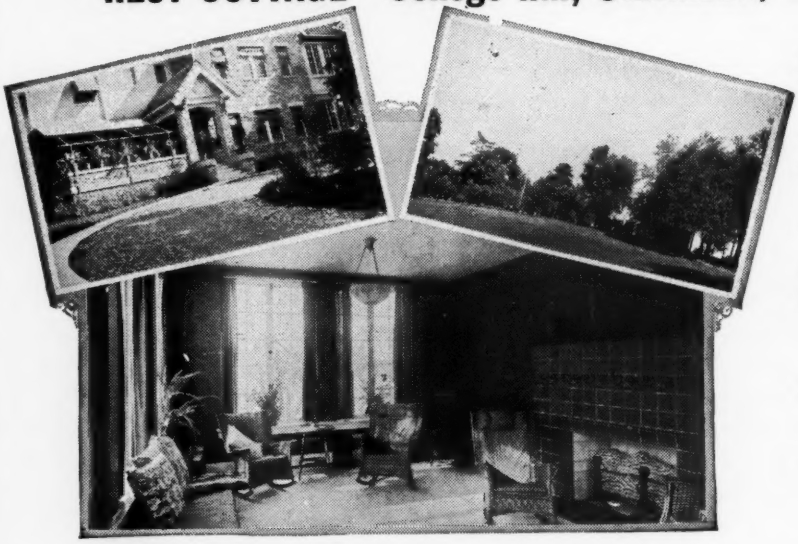

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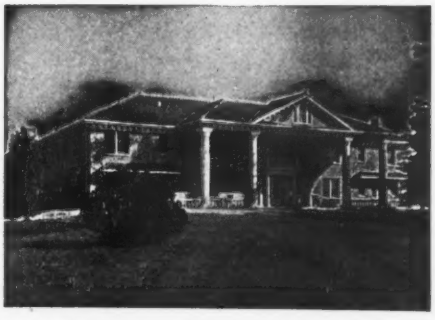

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PULMONARY CHANGES IN UNDULANT FEVER*

By FRANKLIN B. BOGART, M.D.,
Chattanooga, Tennessee

During the past decade, undulant fever has been reported in the United States with increasing frequency and a number of excellent studies of the clinical and pathological features of the disease have appeared. Very little has been said of symptoms referable to the chest, although cases in which pulmonary manifestations predominate have been recognized in Europe, where the disease has long been endemic. Di Pace[1] and Bethoux[2] have both published small series of cases of undulant fever in which these symptoms were the most prominent. American authors have included occasional cases in reported series where reference has been made to cough, pain in the chest, bronchitis or pleurisy. Johnson[3] has recently reported three cases of bronchopneumonia occurring in undulant fever and Sidel and Segal[4] have reported one case simulating pulmonary tuberculosis with cough, fever, sweats, blood-streaked sputum and suspicious x-ray findings. The changes demonstrated radiographically were not enumerated by the authors. Four cases of undulant fever will be reported in this paper, three children and one adult, in which pulmonary symptoms occurred and in which demonstrable changes were found on the chest film.

The pioneer work of Bruce,[5] Bang[6] and Evans[7] in determining the infecting organism in undulant fever is too well known to need reviewing in a paper of this type. The excellent articles of Simpson,[8 9 10] Hardy,[11 12 13] Bierring,[14] Hubbard,[15] Pray,[16] Fliess and Jordan[17] and Sharp,[18] dealing with the symptomatology and pathology of the disease need only be mentioned at this time. The table of symptoms and clinical findings enumerated are those which have been reported by one or more of these writers.

Johnson,[3] in a brief summary of the literature, reports that Fionentini isolated *Brucella melitensis* from the sputum of a case of undulant fever with pneumonia. He also quotes the work of Eyre, who collected reports on 1,000 cases in which pneumonia was of occasional occurrence, and the experimental work of Vanni, in which a culture of *Brucelli melitensis* was inoculated into guinea pigs, producing pneumonia which at necropsy was grossly indistinguishable from tuberculosis. Hardy[11] reports that bronchitis occurs in one-third of his cases. Di Pace[1] discusses at length the question of whether the bronchitis which occurs in undulant fever is due to an invasion of the *Brucella melitensis* or results as a complication of the disease without an actual invasion of the tissues of the bronchi by this organism. He reports three patients with undulant fever who had bronchitis, in two of whom serofibrinous pleurisy developed. The diagnosis was confirmed by positive blood cultures and agglutination tests. In none of these cases was he ever able to isolate *Brucella melitensis* or the *Bacillus tuberculosis* in the sputum or in the pleural fluid. In one of the cases of pleural effusion a streptococcus was isolated and in the other one a streptococcus and a staphylococcus. While concluding that in these cases the bronchitis and pleurisy were simple complications of the disease and did not represent localization of the *Brucella melitensis* in the bronchi and pleura, he admits that the question of whether or not such localization may occur is not settled. Bethoux[2] reports four cases of undulant fever in which the predominating symptoms were pulmonary, that is, cough associated with bronchitis. One case was complicated by a definite pleurisy and had physical signs indicative of a marked congestion at one base. An x-ray examination was not made, but probably a bron-

*Chairman's Address, Section on Radiology, Southern Medical Association, Twenty-Ninth Annual Meeting, St. Louis, Missouri, November 19-22, 1935.

chopneumonia occurred in this case. Two of the cases were very mild and were ambulatory.

Pray,[16] in reviewing a group of forty cases occurring in children, reports one case in a boy of 8 years in which the symptoms were predominantly pulmonary with a cough, weight loss and fever. The Mantoux was repeatedly negative with dilutions of tuberculin of 1/1000 and 1/100. Early agglutination tests for *B. abortus* were negative, but after the illness had persisted for nearly a year the agglutination became positive. Fliess and Jordan,[17] in reporting nine cases of undulant fever occurring in early infancy, had one case with a severe cough in which the physical signs and x-ray findings were negative. Zimmermann[19] reported two cases of undulant fever, both of whom had a diffuse redness of the pharynx and one of whom had a frank bronchitis. Ragan[20] reported five cases, all of which had pulmonary changes ranging from bronchitis to consolidation, although other manifestations were equally pronounced. Kopelowitz[21] reported one case in which a mild pleuropneumonic condition developed at the end of the second week of the illness. There were cough and crackling rales at the right base, followed a few days later by a pleural friction rub. X-ray films of the chest showed only fibrosis.

While a detailed discussion of the diagnosis of undulant fever cannot be made in this presentation, a few salient points will be mentioned. The disease is not usually recognized early in its course, and unless the physician is aware of the many symptoms which it may present and observes the case over a considerable period of time, he is apt to ascribe the findings to influenza or to some other disease of frequent occurrence or to leave the case undiagnosed. While the symptoms in many cases are vague and vary a great deal, a careful history will give valuable information. The source of milk supply is of great importance. It must be remembered, however, that a complete history in regard to this point is difficult to obtain. A large proportion of the herds in this country are infected with *B. abortus* and pasteurization is not always adequately carried out. It is therefore difficult, if not impossible, to exclude the possibility of the infection.

While confirmatory laboratory tests are not infallible and the final diagnosis must be made on clinical data as well as positive laboratory findings, these tests do furnish most important data in establishing a positive diagnosis.

A positive blood culture or the recovery of the *Bacillus abortus* at necropsy in fatal cases supplies indisputable evidence. An agglutination test furnishes very reliable information when positive. Unfortunately, a negative test does not exclude the diagnosis for the reason that there are cases in which the test will not become positive until the disease has existed for many months. In some instances the titer may vary on different occasions, at times being positive at dilutions of 1/80 or higher and at other times showing a titer as low as 1/20.

The intracutaneous test has been used with increasing frequency in recent years. It is obvious that the type of antigen employed will largely determine the accuracy of this test. Giordano,[22] Yeckel and Chapman[23] and others have found that a killed bacterial suspension is most effective. True positive reactions, according to Yeckel and Chapman, are best read at the 96-hour period and usually do not make their appearance until after the 48-hour period, while pseudoreactions are at their height at the 48-hour period. They consider a true reaction as diagnostic of undulant fever, but do not believe that a pseudoreaction is indicative of the disease. The intracutaneous test is of greatest value in those cases having a negative agglutination. When both the agglutination and intracutaneous tests are negative the disease can almost always be excluded.

Until recent years, most cases reported were in adults, but this may have been because the milder forms were not recognized. The articles of Hubbard,[15] Pray[16] and of Fliess and Jordan[17] gave a full discussion of the condition as it occurs in children. While the disease does probably occur more often in adults, the incidence among children is not so rare as was once supposed.

The failure of early workers to recognize the different types of the disease, particularly the milder forms, is doubtless one reason that so many cases have been overlooked in the past. Simpson[10] divides the disease into five clinical types.

(1) *Intermittent Type.*—This is the usual type in the United States. These cases run a subacute course with fever of an intermittent character. The morning temperature varies from slightly subnormal to 100° and the evening temperature ranges from 101 to 104°. The average duration of the disease is three to four months.

(2) *Ambulatory Type.*—Approximately one-fourth of the cases fall in this group, and it is characterized by a relatively short and mild course. Some persons in this group will con-

tinue to work although aware that they are sick, and a diagnosis of influenza is not unusual.

(3) *Undulatory Type.*—This is characterized by relapses. This type occurs frequently in the Mediterranean area, but in only about 15 per cent of the cases in this country. They follow a more chronic course and physical and mental deterioration is of more frequent occurrence in this group.

(4) *Malignant Type.*—This represents 2 per cent of the cases in this country. The onset is sudden, the course acute and in most cases the termination fatal. The duration is from one to three weeks.

(5) *Subclinical Type.*—It is possible for persons exposed to infection to develop anti-abortus agglutinin in the absence of clinical symptoms or signs of the disease. Carpenter, Boak and Chapman[24] have submitted convincing evidence that anti-abortus agglutinins develop only when there has been an actual invasion of the tissues by living abortus organisms. There is no evidence that agglutinins are passively absorbed in the intestines from milk containing killed organisms.

It is only when the clinician is familiar with the various types of undulant fever that he will be on the alert and will recognize the mild cases.

All radiologists and clinicians who have the opportunity of studying the chest films and histories of a large number of cases must be impressed by the frequency with which they encounter cases showing marked peribronchial infiltration or bronchopneumonic consolidation, particularly at the base, in which no definite clinical diagnosis can be made. This is true in both adults and children. Such changes are frequently described as post-influenzal changes. Careful study of the histories of these cases will show that many of them have had acute respiratory infections of one kind or another and not infrequently the children have suffered from some of the exanthematous diseases. The more carefully the case is studied the more frequently will a definite cause be discovered for the change demonstrated on the chest film. In recent years an association between chest changes and some diseases that had not previously been identified with them has been established, notably in tularemia. The four cases here reported are offered as examples of undulant fever in which symptoms referable to the chest were encountered and in which peribronchial infiltration or bronchopneumonia consolidation occurred. Active tuberculosis can be excluded: in the children by repeated negative tuberculin tests in ascending doses and by the clinical findings, and in the adult by the course of the disease and the autopsy findings. It is not possible at this time to estimate the frequency with which cases of this kind may occur. Probably they represent a very small group among the non-tuberculous respiratory infections. Since undulant fever is occurring with increasing frequency in many parts of our country and has been overlooked in its milder forms by many physicians, particularly in children, it seems reasonable to believe that we may encounter pulmonary changes associated with it more frequently than we expect. Surveys of large groups of cases will have to be undertaken before its incidence can be accurately determined.

Case 1.—E. A., a white male, aged 11 years, consulted Dr. L. Shumacker March 29, 1935, complaining of general malaise, associated with afternoon rise of temperature.

The past history was non-essential as related to the present illness. There was no history of contact with an open case of tuberculosis.

The onset had been gradual, and early in the course of the disease there had been a sore throat. The afternoon rise of temperature was associated with chilly sensations, but there had been no rigors and no nocturnal perspiration. Headaches of moderate severity were present and there was a cough. The history of milk

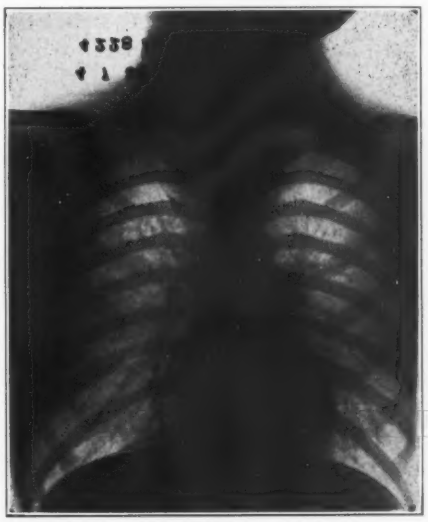

Fig. 1-A

March 29, 1935. E. A., white male, aged 11 years. Massive hilum infiltration. Marked peribronchial infiltration of both lungs. Anterior posterior view.

Fig. 1-B

March 29, 1935. E. A., white male, aged 11 years. Massive hilum infiltration. Marked peribronchial infiltration of both lungs. Lateral view.

supply was unsatisfactory. The main source of supply was pasteurized milk.

The physical examination of the chest was negative. The spleen was palpable and there was general muscle tenderness. All other findings were negative. There were 4,610,000 red blood cells with 82 per cent hemoglobin. The white blood count was 6,100 and there were 55 per cent lymphocytes. The urine was negative and a blood culture and agglutination tests for typhoid, paratyphoid and abortus were all negative. The Mantoux tuberculin test was negative in dilutions of 1/1000 and 1/100 on repeated examinations. The intracutaneous test for undulant fever, using the antigen of Drs. Chapman and Yeckel, was strongly positive.

The x-ray examination of the chest showed massive hilum infiltration with few enlarged lymph nodes and marked peribronchial infiltration throughout both lungs.

A diagnosis of undulant fever was made and the patient treated symptomatically. Recovery occurred in four to five months.

Case 2.—J. K., a white male, aged 10 years, was referred for an x-ray examination of the chest November 4, 1931. There was general malaise, afternoon rise of temperature and a slight cough. There had been chilly sensations, but no rigors and no nocturnal perspiration. Headaches were of occasional occurrence. The x-ray examination of the chest showed marked hilum infiltration with a few calcified glands and marked peribronchial infiltration throughout both lungs. These changes extended well to the periphery and into the apices and the changes at the apices were soft in character.

The patient was treated by rest in bed and later by restricting his activities and by general symptomatic treatment. Over a four-year period the patient had repeated relapses, at which times he had an afternoon temperature and complained of general weakness. There was never any loss of weight, although throughout this period his activities were restricted and general dietary measures carried out. The diagnosis at the outset was indeterminate, but juvenile tuberculosis was suspected.

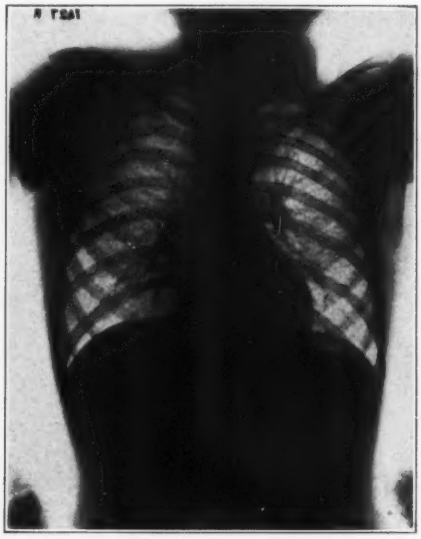

Fig. 2-A

November 4, 1931. J. K., white male, aged 10 years. Marked hilum and peribronchial infiltration of both lungs. Anterior posterior view.

Fig. 2-B

November 4, 1931. J. K., a white male, aged 10 years. Marked hilum and peribronchial infiltration of both lungs. Lateral view.

He consulted Dr. L. Shumacker for the first time July 2, 1935. At this time he had suffered another one of his relapses and had an afternoon temperature. The symptoms were identical with those suffered in previous attacks.

There was impaired resonance, broncho-vesicular breathing and increased whispered voice sounds at both apices. All other findings of the physical examination were negative. The red blood cells were 4,125,000 with a hemoglobin of 90 per cent. The white cell count was 7,400 and the lymphocyte count was 30 per cent. The urine was negative. The blood culture was negative, as were repeated Mantoux tuberculin tests with dilutions of 1/1000 and 1/100. The agglutination test for *B. abortus* was positive at 1/100 and the intracutaneous test, using the antigen of Drs. Chapman and Yeckel, was positive. The main source of milk supply was pasteurized milk, but milk had been consumed from other sources. The x-ray findings were essentially the same as at the time of the previous examination except that there was now much more fibrosis. The treatment has been symptomatic with restriction of activities.

Case 3.—V. C., a white female, aged 7 years, was seen by Dr. H. F. Shields on April 24, 1935. The patient was suffering with symptoms of an acute respiratory infection. The onset had been sudden and was accompanied by a chill. There was a daily afternoon and evening rise of temperature ranging as high as 103°. Headache, cough and anorexia were present.

At the right base there were fine and medium coarse rales and broncho-vesicular breathing.

This patient lived in a rural community and drank raw milk.

On May 30, 1935, the patient was seen in consultation by Dr. L. Shumacker. At this time all physical findings were negative. The afternoon rise of temperature and the general malaise continued. The blood count was 3,500,000 red cells, 7,400 white cells and 41 per cent lymphocytes. The urine was negative. Repeated Mantoux tuberculin tests for *B. abortus*, using the antigen of Drs. Chapman and Yeckel, were positive.

The x-ray examination of the chest showed marked hilum infiltration with a few enlarged lymph nodes. There was moderate peribronchial infiltration throughout both lungs. The infiltration in the posterior mediastinum was quite marked.

A diagnosis of undulant fever was made, the patient's activity restricted and general symptomatic treatment given. Occasional relapses are still occurring.

Case 4.—Mrs. F. G., white female, aged 52 years, was first admitted to Baroness Erlanger Hospital July 17, 1933, with a complaint of general malaise associated with recurring attacks of fever, which came in the afternoon and evening and were accompanied by chills and night sweats.

The family history and past history had no bearing on the present illness. The patient lived in the country and did drink raw milk.

The patient had always enjoyed good health until the onset of the present illness a little more than a year previously. During each recurring attack the above mentioned symptoms had occurred daily. Two months previous to admission one of these attacks was very much exaggerated and at this time a clinical diagnosis of malaria was made. There was considerable restlessness and insomnia and some dyspnea, and there had been a weight loss of 21 pounds. Cough and pain in the chest were present.

The positive physical signs were fine and medium coarse rales at both apices and on the right side in the middle lobe area. The liver was palpable. The eyes, ears, nose and throat were negative, as were the heart

Fig. 3-A

May 30, 1935. V. C., white female, aged 7 years. Marked hilum infiltration. Moderate peribronchial infiltration of both lungs. Anterior posterior view.

Fig. 3-B

May 30, 1935. V. C., white female, aged 7 years. Marked hilum infiltration. Moderate peribronchial infiltration of both lungs. Lateral view.

Fig. 4

July 17, 1933. F. G., white female, aged 52 years. Massive hilum infiltration. Bronchopneumonic consolidation of the right base. Moderate peribronchial infiltration of left base. Anterior posterior view.

and genito-urinary system. The spleen was not palpable.

The temperature ranged from normal in the morning to 101-102° in the afternoon and evening. The blood count showed a moderate anemia with 65 per cent hemoglobin and 3,020,000 red blood cells. There was a leukopenia with a white cell count of 4,800 and the differential count was normal. The urine was negative.

A radiographic examination of the chest showed a marked increase of the hilum densities with a moderate number of calcified nodes. There was massive peribronchial infiltration at the right base, which was marked enough to class as bronchopneumonic consolidation. There was moderate peribronchial infiltration at the left base.

The patient was referred to Pine Breeze Tuberculosis Sanatorium with a tentative diagnosis of active tuberculosis. The study of the case in this Sanatorium, where additional radiographs, repeated sputum examinations and a study of the clinical features of the disease were made, led to the conclusion that the patient did not have active tuberculosis, and she was again referred to Erlanger Hospital.

The patient was readmitted to Erlanger Hospital August 8 and remained there until her death September 25, 1933. The findings at the time of the second admission were essentially the same as at the first admission. Before death occurred the temperature went higher, being 105° on several occasions; the weakness and nocturnal chills and sweats became more pronounced. The anemia became more marked and a systolic murmur, which was not transmitted, was heard at the apex. Five blood transfusions of 500 c. c. each were given between August 25 and September 14. Several agglutination tests for *B. abortus* were made; all were positive, ranging in titer from 1/20 to 1/80 dilution.

The terminal picture was that of gradual lessening of all body functions with final cardiac and respiratory failure.

NECROPSY

By Dr. R. P. Ball

The body is that of a well developed, fairly well nourished white adult female, showing a jaundice tinge to sclera and skin.

Peritoneal Cavity.—Panniculus adiposis of the anterior abdominal wall measures 2 cm. in thickness. The peritoneal cavity contains about 300 c. c. of pale yellowish fluid. The peritoneum is glistening and clean. The liver margin is 2 cm. below the costal border on the right side. The greater omentum is fairly well distributed over the cavity.

Gastro-Intestinal Tract.—The stomach and intestines show no gross abnormalities on examination of the external surface. The mucosa of the stomach shows multiple areas of petechial hemorrhage. The mucosa of the terminal ileum shows no Peyer's patches. The mucosa of the colon and cecum shows no gross change. The lymphatics of the mesentery of the small bowel show an occasional solitary firm lymph node 2 cm. in diameter.

Spleen.—The organ is dark, purplish gray, very firm in consistency and contains numerous discrete, dull white and pale yellow areas scattered throughout averaging 5 mm. in diameter. The splenic notch is prominent, but not deep. In some places there is apparent fusion of these areas, producing a larger lesion. The organ weighs about 650 grams. The hilum of the spleen shows apparent thrombotic and obliterated sclerotic vessels. The cut surface shows moderately friable purplish red splenic pulp.

Liver.—The weight is 1,800 grams. The edges are rounded and stellate linear and ovoid, dull white scars are seen, apparently beneath Glisson's capsule. On section these scarred areas cut with considerable resistance. Dark, grayish discrete nodules, averaging 4 to 6 mm. in diameter, are seen throughout the organ. The elevated interlacing striations as seen in chronic passive congestion (nutmeg liver) are present. The bile ducts are patent and contain a thick, viscid, black bile. The gallbladder is fairly large, somewhat redundant and has a moderately thick wall. There are no adhesions between the gallbladder and liver.

Kidneys.—Both organs are about normal in size and consistency. They have a grayish cut surface with a well delimited cortex, averaging 7 mm. in width. The capsule strips rather easily.

Adrenals.—Both organs are fairly firm and on section show a complete absence of the pearly gray medulla.

The uterus and adnexa appear to be normal.

Through an incision in the diaphragm the lungs and heart are examined. There are no pleural adhesions. The right lung shows a consolidation of the lower two-thirds of the middle lobe, which is dark purplish red and firm. The remainder of the lung is pinkish gray and crepitant throughout. Firm nodules averaging 2 mm. in diameter are present. The left lung is crepitant throughout and is negative.

The heart is normal in size and consistency. There

Table 1

Name	E. A.—1	J. K.—2	V. C.—3	F. G.—4
Age	11	12	7	52
Sex	Male	Male	Female	Female
Onset				
Sudden	No	No	Yes	
Gradual	Yes	Yes	No	Yes
Afternoon rise of temperature (height)	101 highest; yes	99.4	103	101-105
Chill, 90 per cent of cases Rigor, 1/3 of cases	No	No	Yes	No
Chilly sensation	Yes	Yes	No	Yes
Nocturnal perspiration	No	No	No	Yes
Relapsing or 1 febrile course (several weeks to several months)	1 course several months	Relapsing over 4-year period	1 course several months	Relapsing over 15 months
Loss of weight (how much)	Few pounds	None	Few pounds	21 pounds
Maculo-papular eruption	No	No	No	No
Headache	Moderate	Occasional	Yes	No
Epistaxis	No	No	No	No
Restlessness and insomnia	No	No	Yes	Yes
Stomatitis	No	No	No	No
Delirium	No	No	No	No
Backache	No	No	No	No
Flatulence	No	No	Some	No
Sore throat	Yes	No	No	No
Chest pains	No	No	No	Yes
Cough	Slight	Slight	Yes	Yes
Blood-streaked sputum	No	No	No	No
Palpitation	No	No	No	Yes
Dyspnea	No	No	No	Yes
Anorexia	Yes	No	Yes	No
Constipation	Moderate	No	No	No
Diarrhea	No	No	No	No
Palpable spleen (1/3 cases)	Yes	No	No	No
Tender muscles (1/3 cases)	Yes	No	No	No
Tender joints	No	No	No	No
Abdominal pain General Localized (where)	No	No	No	No
Painful swelling of testes Transient Suppurative	No	No		
Other G.-U. symptoms	None	None	None	None
Physical signs in chest	None	Impaired resonance; broncho - vesicular breathing; increased whispered voice sounds	Fine and medium coarse rales; broncho-vesicular breathing	Fine and medium coarse rales apex and middle lobe area
Heart				
Endocarditis	No	No	No	No
Myocarditis	No	No	No	No
Hemoglobin per cent	82	90	----	65
Red count	4,610,000	4,125,000	3,500,000	3,020,000

Table 1 (Concluded)

Name	E. A.—1	J. K.—2	V. C.—3	F. G.—4
White count	6,100	7,000	7,400	4,800
Lymphocytosis per cent	Yes (55)	No (30)	Slight (41)	No (28)
Urine				
Albumin	None	None	None	None
Pyuria	None	None	None	None
Blood culture	Negative	Negative	Not made	Not made
Agglutination	Negative	1-100	Not made	1-80
Intracutaneous	Positive	Positive	Positive	Not made
Abortus recovered at autopsy				Yes — spleen and gallbladder
X-ray chest	Massive hilum infiltration; marked peribronchial infiltration	Marked hilum infiltration; marked peribronchial infiltration	Marked hilum infiltration; moderate peribronchial infiltration	Massive hilum infiltration; bronchopneumonic consolidation right base; moderate peribronchial infiltration of left base
Tuberculin	Negative	Negative	Negative	Not made
Clinical Type				
Intermittent	Yes		Yes	
Ambulatory		Yes		
Undulatory				Yes
Malignant				
Subclinical				

is no peribronchial effusion. There is no gross evidence of endocarditis.

ANATOMICAL DIAGNOSIS (Gross)

Ascites, slight
Subacute gastritis
Chronic and subacute splenitis
Chronic hepatitis
Localized pneumonic consolidation, right lung

MICROSCOPICAL PATHOLOGY

Lungs.—Sections show localized areas of atelectasis, involving three to five acini, which are filled with granulation tissue. The granulations are old, being composed of well formed fibrous tissue. There are a few clumps of mononuclear leukocytic infiltration of acini with edema and fibrinous exudate. In these sections both the old and recent inflammatory reaction is present. This recent reaction is interpreted as a terminal process (bronchopneumonia). In some areas the bronchioles and bronchi of the third and fourth division show a moderate fibrous deposit at their periphery. A moderate amount of black pigment (carbon) is found near the periphery with a minimum of leukocytic reaction.

Spleen.—Sections of the spleen show large areas of hyalinization surrounded by dense, fibrous tissue and peripheral to this, a zone of mononuclear leukocytic reaction. The splenic pulp between these areas is markedly engorged with blood.

Liver.—Sections show considerable replacement fibrosis of the parenchyma with islands of well preserved liver cells. Scattered focal masses of leukocytes, mainly lymphocytes, are seen. The greatest destruction of liver cells appears to be near the periphery. Old granulation tissue is attached to Glisson's capsule, which is infiltrated with mononuclear leukocytes. The bile ducts are fairly well preserved in these scleratic areas.

Kidney.—Normal.

MICROSCOPICAL DIAGNOSIS

Bronchopneumonia (probably terminal)
Multiple granulomas of the spleen
Granulomata of the liver
Chronic hepatitis

BACTERIOLOGY

The gallbladder was removed under aseptic conditions and the bile cultured on dextrose broth, blood agar and lactose bile broth. Guinea pigs were also inoculated intraperitoneally with the bile. Primary smears and stain of lungs, spleen and bile showed polymorphonuclear leukocytes and gram-negative cocco-bacilli.

Cultures show gram-negative cocco-bacilli in pure strain.

Guinea pigs died at forty-eight hours and seventy-two hours. There was a rather pronounced peritoneal exudate and smear and stain showed a many gram-negative cocco-bacilli.

At about the fifth transfer of culture a greenish pigment developed in the media. The colonies were at first semi-transparent, small and moist. On continued transfer of culture the organism tended to lose their cocoid form.

The diagnosis was *B. abortus* infection.

SUMMARY

(1) Pulmonary manifestations of undulant fever have been recognized, particularly in Eu-

rope, where the disease has long been endemic. Few references to these symptoms have occurred in the literature.

(2) Mild cases of undulant fever are being frequently overlooked and a thorough understanding of the various types of the disease is essential if the clinician is to recognize the condition.

(3) Four cases of undulant fever are presented in which symptoms referable to the chest occurred and in which chest films showed marked peribronchial infiltration or bronchopneumonic consolidation.

(4) The opinion is expressed that cases representing mild types of the disease may be frequently overlooked and may constitute an appreciable proportion of the large group of non-tuberculous pulmonary infections.

NOTE.—Appreciation is expressed to the following men for their permission to use clinical material: Dr. L. Shumacker, Dr. H. F. Shields, and Dr. R. P. Ball.

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MANAGEMENT OF PANSINUSITIS*

By WILLIAM A. WAGNER, M.D., F.A.C.S., New Orleans, Louisiana

It is impossible to present a comprehensive survey of this enormous subject in the allotted time. The purpose of this address is to acquaint you with my method of approach in handling pansinusitis diagnostically and therapeutically, and to emphasize the value of surgical procedure in those cases which require complete eradication of the sinus mucosae.

So little has been written on this subject that no bibliography other than that found in textbooks could be obtained. Ballenger[1] and Imperatori and Burman,[2] in their 1935 editions, do not mention pansinusitis and it is not indexed. Skillern[3] covers the subject in less than 15 lines of his text and says: "While pansinusitis of one side is uncommonly met with, for all the sinuses to be simultaneously involved is the greatest rarity."

Jackson and Coates[4] merely mention the word under anosmia in pansinusitis and say: "Chronic pansinusitis is often associated with the formation of multiple nasal polypi."

W. C. Phillips[5] lists the condition in the index page 574, on which page the only sentence referable to the subject is: "Patients with a history of unilateral or bilateral nasal discharge, especially when it has existed for some time, should be subjected to a careful examination of all the accessory sinuses."

Hajek,[6] in his 1926 edition, translated by Heitger and Hansel, mentions the word, and says:

"Acute maxillary empyema appearing with very strong symptoms, such as high fever and general mani-

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festations, is very rare and is usually associated with empyema of the accessory sinuses on the same side (pansinusitis) which, in spite of its short duration, requires radical operation."

Barnhill[7] devotes scarcely more than one page to multiple sinusitis and pansinusitis: cause, symptoms, diagnosis and treatment, saying:

"The question of most interest in dealing surgically with several diseased sinuses in the same case is, how many should be attacked at the same time, and this depends upon the number involved, the physical condition of the patient, and, to some extent, upon the skill and speed of the operator."

Every acute sinusitis begins with a coryza or rhinosinusitis and the majority of coryzas save influenza, scarlet fever and a few other acute respiratory diseases are nothing other than the so-called common cold. Try to find someone who is not interested in the common cold! The average normal individual is likely to be afflicted one or more times a year, and is thereby forced to take a very personal interest in it. When so-called colds or coryzas recur in rapid succession, they are often actually exacerbations of old chronic single or multiple sinusitis and are erroneously referred to as colds. Nevertheless they serve as a subject of lay study, through conversation, magazines, industrial publications, governmental compilations and medical journals. Little is accomplished therapeutically, as true coryza is self-limiting, but its complications are preventable, particularly sinus disease. The United States Public Health Service estimates conservatively that the common cold inflicts upon this country a direct economic loss of four hundred fifty million dollars (nearly one-half billion dollars) annually, not to include the additional losses resulting from its frequent sequel, sinusitis. Strange to say, sinusitis is more frequently multiple than single and too much emphasis cannot be laid upon this fact. Nearly all acute sinus infections, single or multiple, clear up if given intelligent care. On the other hand, if the general health is poor, and if the nose is abnormal, with septal deviation or other pathologic conditions; or if the patient is neglected, the acute infectious process may become chronic. In chronic sinusitis it is not only lay opinion but also the opinion of many members of the medical profession that treatment particularly is a failure. The old belief, "Once a sinusitis always a sinusitis," has been sustained because poor advice has been given those afflicted with the disease, based upon wrong diagnosis by members of the medical profession. A naso-antral opening into an antrum which is hopelessly infected, or incomplete operations have been performed upon many of the patients who have been victims of multiple unsuccessful operative experiences.

The frequency of pansinusitis in older children and adults needs constant emphasis. Many rhinologists have not realized the fact that most protracted coryzas are acute pansinus suppurations of variable degrees of involvement. Many recover, as they are self-limited, providing no local factors prevent ventilation and drainage, and constitutional disturbances do not impair the vitality of the tissues. Recuperation takes place with a minimum of damage to the mucosa, which has developed some immunity against subsequent attacks. But if there is a local abnormality within the nasal cavity, a deviated septum, or a constitutional disturbance, endocrine dyscrasia, focal infection, specific disease, poor hygiene, faulty diet, or a combination of these factors recovery does not take place, but a chronic infection develops with periodic exacerbations often complicated by laryngitis, tracheitis and bronchitis. In these cases in which cyclic attacks occur, one is constantly forced to decide whether sensitization or infection is responsible. Typical acute rhino-sinusitis with hyperemic mucosa and mucopurulent secretions, malaise and fever is invariably due to infection.

The pale, boggy, water-logged mucosa with abundant mucoid secretion which is present during activity but may be absent when the patient is quiet, is often diagnosed as allergic. Of special diagnostic value is the microscopic examination of nasal and bronchial secretions. Invariably in the stage of activity and quite frequently in the stage of quiescence eosinophils are present.[8] It has been my experience that in the stage of quiescence the predominance of masses of unusually large histiocytes characterizes the cytologic picture more than do the eosinophils which may be absent on many examinations.

The history, both family and personal, are of outstanding importance, particularly in regard to other allergic manifestations and likewise skin, nasal and ocular tests, and elimination diets are of diagnostic value.

DIAGNOSIS

The recognition of infection in only one sinus which dominates the symptoms of a case of multiple sinusitis is a natural error, because symptoms from one sinus are apt completely to overshadow the others. In such a case, multiple sinus disease is not suspected, the casual examiner is often well enough satisfied when he

proves that one cavity is involved; therefore, he fails to delve into the possibility that other sinuses may be diseased. This error must be avoided. The rhinologist must learn to recognize an involvement of all the sinuses, and until he does, the obstacle in the diagnosis of sinus disease will not be overcome.

In fulminating cases, the condition may have been multiple from its inception. Nevertheless, in the large majority of instances one sinus has been the original focus of infection which has subsequently spread to the adjacent sinuses.

It is impossible in a short space of time to cover all details necessary for conclusion of a diagnosis. The usual routine methods will be briefly mentioned and a few additional methods found valuable by the author will be described. Thorough history taking, and particularly thorough examination, are essential.

Routine examination consists of, first a general constitutional survey as it may relate to or influence the patient's condition on examination. This consists of studying nutritional influences, vitamins, acidity or alkalinity of the diet, autonomic influences as to whether there is a dominance of the sympathetic or parasympathetic system (based upon the color of the nasal mucous membrane and physical findings), and endocrine survey.

In examination of the ear, nose and throat, the nasal examination consists of anterior and posterior rhinoscopy, endoscopy, infraction and crushing of turbinates for further examination. Palpation, lavage of the sinuses and radiography with or without radiopaque substances are used.

ADDITIONAL METHODS OF EXAMINATION

Discoloration of a cotton applicator passed into the meatuses, particularly the olfactory fissure and spheno-ethmoidal recess, is significant. Discoloration may result from either an accumulation of polymorphonuclear cells (neutrophils) or pus, or a concentration of mononuclear cells, principally histiocytes. It signifies a pathologic process in the sinus or sinuses draining into that particular meatus, in the absence of acute rhinitis, and thus it serves as a clue to further investigation. The predominating type of cell in a stained smear contributes definite information as to the condition.

In the past, little interest has been manifested in cytologic study of sinus lavages in spite of the fact that Watson-Williams[9] (1920) first called attention to its potentialities in sinus diagnosis. No noteworthy contributions have been written on this subject save that which appeared in 1924 by Sewall,[10] in which no detailed information was given.

Cytologic study of the sinus lavage, if the irrigation does not demonstrate purulency, is a very valuable measure in determining the pathologic changes. If pus is observed, the study is postponed, if possible, until the lavage becomes clear, which signifies remission, the proper stage for such a study. Study of the cells of the sphenoid washing is of considerable value, as other methods of examination of this sinus, for instance radiography and endoscopy, are unsatisfactory.

It is by means of this comprehensive survey and only by thoroughness that it is possible to make a correct diagnosis of pathologic processes in the sinus membrane. Today the degree of mucosal involvement is of great importance. The frontal, sphenoid and antrum sinuses may be irrigated and through the conclusions drawn as to the pathologic degree of involvement present in these sinuses, much additional information and assistance are available in the diagnosis of the condition of the ethmoid. Radiographs of the ethmoid are unsatisfactory and this sinus is impossible to lavage; therefore, information obtained directly is of much value.

To enter into a detailed description of how a diagnosis of the pathologic process is made is not within the province of this paper.

PATHOLOGY

The curability of pansinusitis, as in individual sinus disease, requires a thorough understanding of the histopathology. The pathologic types with which the surgeon is most concerned from a surgical viewpoint are those which are incurable. They represent the chronic and not the acute types. The hyperplastic type with ulcerations, in the tunica propria of which microorganisms are harbored (*Figs. 3* and *4*), which are serving as foci of infection, with metaplastic (*Figs. 5, 6, 7, 8, 9, 10* and *11*) and degenerative (*Figs. 12, 13, 14* and *15*) mucosae[11] are incurable except by extirpation.

Kistner[12] and others have demonstrated bacteria in the thickened vessel walls in sinus tissue removed from individuals having cardiovascular disease. *Fig. 3* shows a photomicrograph through the tunica propria of an infected polypoid mucosa from a sinus in which bacteria are not only clumped together in masses, but are scattered throughout the stroma. Likewise such condition in a hyperplastic mucosa might, because of constitutional symptoms, necessitate extirpation.

Fig. 1

Normal sphenoid mucosa showing the four layers: stratified columnar ciliated epithelium, basement membrane visible in places, tunica propria and pseudoperiosteum which attaches the mucosa to sphenoid bone.

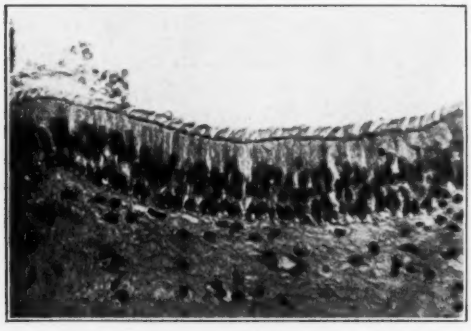

Fig. 2

Photomicrograph showing normal sphenoid epithelium which is stratified columnar ciliated epithelium.

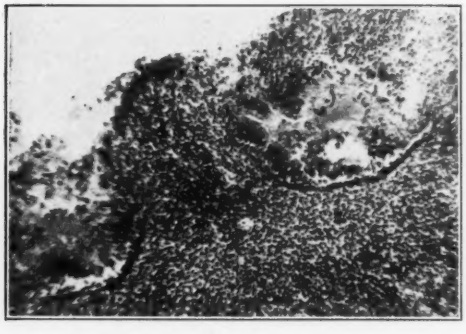

Fig. 3

Acute exacerbation of an old chronic hyperplastic mucosa which is rapidly being transformed into metaplasia. The infiltration and aggregation of neutrophils is so extensive that an abscess is developed and is rupturing through the epithelium in volcanic fashion.

Metaplasia may involve any constituent part of the mucosa. If it involves the epithelium, the cilia essential to function in the normal mucosa (*Figs 1* and *2*) are lost. It may become more or less stratified and transformed into a stratified cuboidal or squamous type (*Figs. 5* and *6*). The tunica may be transformed into granulomatous tissue or become proliferative to the stage of papillary formation or become a fibrotic mass. Blood vessel or lymphatic proliferation, or glandular proliferation with adenoma formation may dominate the tunica (*Figs. 8* and *9*). The pseudoperiosteum and bone participate with periosteal proliferation, new bone formation, dense bone formation, osteoporosis, and necrosis (*Fig. 10*). The process may result in osteoma,

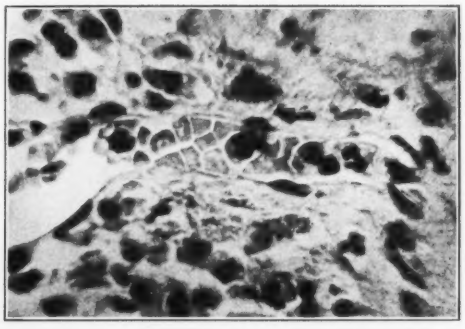

Fig. 4

Acute exacerbation of an old chronic hyperplastic and degenerative sinusitis. The field represents a section through a vessel filled with red blood cells and many leukocytes, mostly neutrophils. The stroma is dominated with plasma cells, evidence of polypoid changes, and many bacteria are visible in clumps and scattered throughout the mucosa.

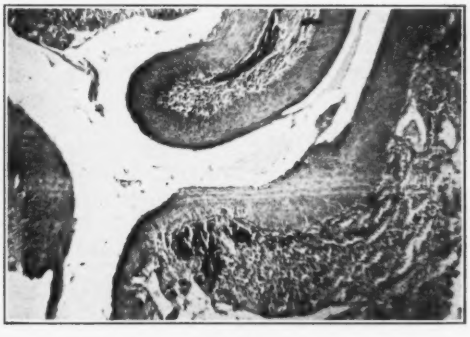

Fig. 5

Metaplasia of both epithelium and tunica. This specimen was collected from a purulent maxillary sinusitis. Because of the enormous transformation such a patient should be observed for the possibility of malignancy later.

bony cysts, and so forth; that is, it may approach neoplastic formation (*Fig. 11*).

Degeneration.—(a) Polypoid degeneration is characterized by marked swelling of the mucosa due to alteration of the stroma and cellular elements of the tunica in which there is an albuminous degeneration (*Fig. 14*). In the infected polyp the plasma cell and neutrophile predominate. If there is marked polyblastic formation, a papillomatous polyp may result; if glandular tissue preponderates, a glandular polyp may result; and with fibroblastic formation, fibrous polyp. Because of the edema which may be increased by thrombi of the veins, which interferes with nutrition of the surface, epithelium desquamation results, with loss of ciliated epithelium.

(b) Cystic degeneration results from obstruction of the ducts of the mucous and serous

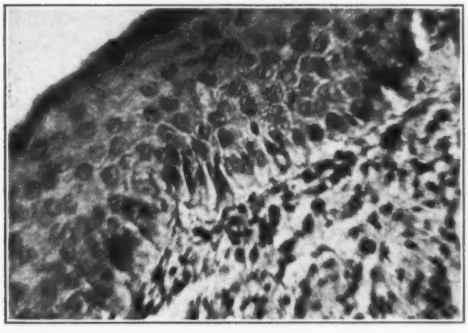

Fig. 6
High power magnification of metaplastic epithelium.

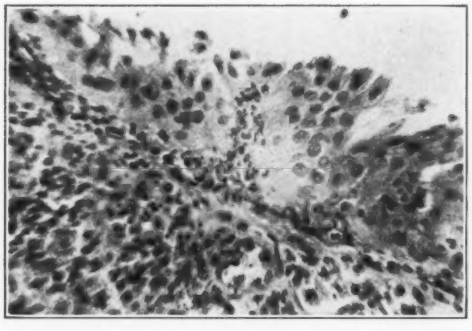

Fig. 7
Acute exacerbation of a chronic polyp with marked metaplasia of epithelium in which neutrophils are migrating through epithelium towards lumen of sinus.

Fig. 8
Metaplasia of serous glands in an antrum in which the proliferation of glandular tissue has practically reached a stage of adenoma.

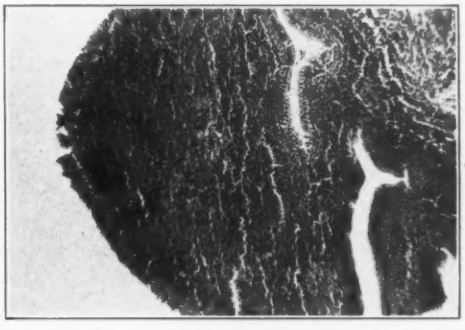

Fig. 9
Metaplastic sphenoid mucosa from a case of pansinusitis. There is extensive tunica proliferation and cellular infiltration. The epithelium varies from normal to stratified cuboidal in type. Pus had been demonstrated continually by lavage.

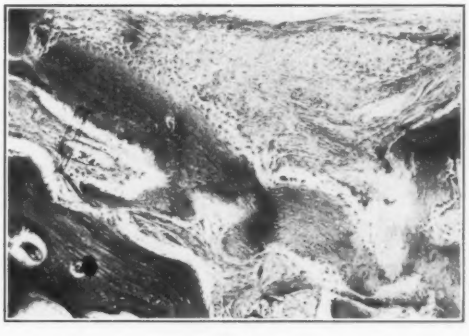

Fig. 10
Metaplasia of periosteum into new bone. Areas of this specimen showed cartilage formation and bone necrosis.

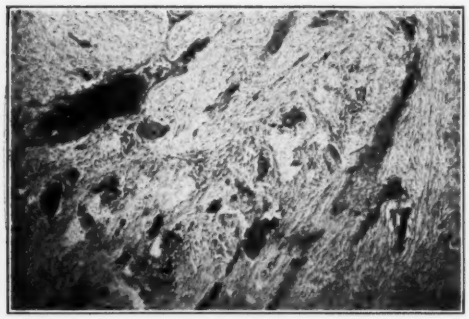

Fig. 11
Bone metaplasia into what might almost be termed osteoma. The inner wall of the frontal sinus from which this specimen was procured showed bone irregularities.

Fig. 12
Metaplasia of mucous glands with cystic degeneration from an antrum.

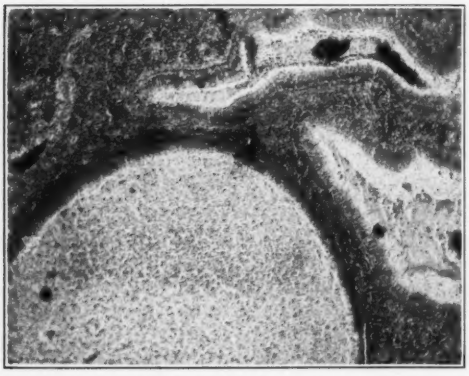

Fig. 13
Metaplasia of serous glands with cystic degeneration from antrum.

glands (*Figs. 12* and *13*). The cysts may become infected from abscesses and drain, harbor bacteria or limit their growth by encystment.

(c) Atrophy, often spoken of as the fibrotic or sclerotic type, results from obstruction of the afferent circulation (*Fig. 16*) and is often associated with lues. The epithelium is atrophic, of the simple cuboidal type, or even completely desquamated or absent in areas. The glands are atrophic and scattered in a fibrotic tunica with periarteritis, arteritis and endoarteritis.

Many cases show several types of changes and are spoken of as the mixed type.

It is this group which is the cause of improper conservative management of sinusitis wherein only complete exenteration of the mucosa is indicated. Some patients have been treated expectantly over a considerable period of time. They are requested to return frequently for office treatments over periods of months or years. In the first place, only a comparatively small proportion of them find it expedient to return to the office for subsequent treatment. They seek home remedies and subsequently go through years of needless physical disability.

Certain sinus diseases are incurable except by extirpation because transformation of the normal membrane interferes with physiological processes. For instance, in metaplasia of the surface epithelium, stratified squamous may be substituted for stratified columnar ciliated epithelium, thereby inhibiting the normal elimination of mucus or other contents in the lumen of the sinus. Again, disease processes are represented by irreversible changes in the mucosa of degeneration, atrophy and necrosis. A metaplastic mucosa the epithelium of which has been changed from the pseudostratified columnar ciliated type to squamous, the glands of which have proliferated and denegerated into cysts, and the tunica propria of which has proliferated into a thickened fibrotic mass with its vessel walls thickened and tunica infiltrated with cells to such a degree that nutritional impairment produces epithelial desquamation, will not recover under any form of nasal treatment. All other pathologic types of sinusitis should respond to conservative care under proper management both on the part of the patient and rhinologist.

It is our greatest duty to sufferers from sinus disease to prevent the progress of reparable conditions to the irreparable stage which requires surgical intervention.

PREVENTION

To prevent sinusitis means to educate the public not particularly as to what is a sinusitis, but to encourage the afflicted to obtain the services of a physician early, especially if the cold fails to clear up in several days or recurs frequently. Often the individual develops a cold in the presence of an abnormal nose, bad habits, poor hygiene or a constitutional disorder which could easily be detected and corrected by the physician. Instead of seeking the proper medical aid, often the individual falls victim to the persuasive eloquence of a radio spellbinder extolling the virtues of this or that "cure" and will be firmly convinced of its miraculous powers to relieve the cold or rhinitis. Or, as often happens, because of the frequent attacks of "head colds," nothing other than exacerbations of a chronic sinusitis, he attempts self-medication founded upon advice from a relative or friend who has made the diagnosis of sinusitis and related the discouraging experiences of a patient who was operated upon many times without relief. Therefore, the medical profession should continue to encourage legislative abolition of false advertising of medicines or medical cures for sinusitis and sponsor educational campaigns on the prevention and curability of sinus disease. The public should be informed that the majority of sinus diseases, including pansinusitis, are curable, and the few protracted cases in the aged may be ameliorated or symptomatically cured.

TREATMENT

No rhinologist will question the difficulties experienced in some cases of sinus disease, or pansinusitis, which is called by the laity "sinus trouble." The treatment prescribed or the advice given is varied and patients who may have occasion to consult more than one physician will often find themselves in a dilemma and frequently end in a state of confusion rather than enlightenment as to the true state of affairs.

The medical profession is not in general agreement as to the treatment of sinusitis, principally pansinusitis, for the following reasons: (1) often it has been impossible to arrive at the exact pathologic status of the sinus mucosa without exploration, and the attitude of the physicians and public to the rhinologists in this regard is unlike the attitude towards the general surgeon in exploratory laparotomy.

(2) Much disagreement exists among rhinolo-

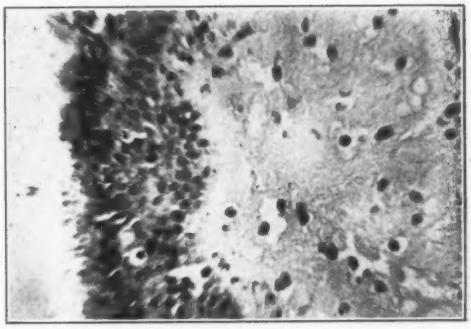

Fig. 14
Polypoid degeneration with metaplasia of epithelium (infected polyp).

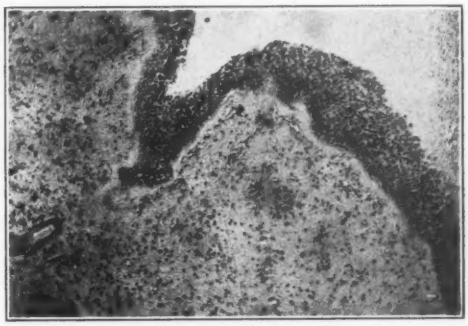

Fig. 15
Mixed type. Allergic infected polyp from ethmoid with metaplasia of the epithelium. Basement membrane is thickened, stroma is myxomatous in character with eosinophils, neutrophils and plasma cells.

Fig. 16
Atrophy. The metaplastic epithelium in areas has desquamated. Tunica is thin and fibrotic.

gists in surgical cases as to how many of the sinuses should be operated upon at one time. But with the advent of better methods of diagnosis and understanding of the relationship of the sinuses to the rest of the organism and particularly more definite understanding of the histopathology of sinus mucosae, the indications for surgical intervention are becoming better established.

CONSERVATIVE MANAGEMENT

Sinusitis with its numerous pathologic changes has systemic and local aspects, and in treatment it is equally important to consider both. The reparable cases of pansinusitis are easily handled by the usually accepted methods in use today. There is no disagreement in regard to treatment of acute and subacute multiple or pansinusitis, but the profession is divided as to the treatment of chronic cases. Much of the distress and disappointment has culminated from the teachings and writings of authorities who have constantly insisted upon conservative management despite the fact that many cases harbor hopelessly diseased mucosae. The mild, chronic infiltrative, early hyperplastic types are amenable to conservative local and constitutional measures and when indicated to constructive surgery (nasal submucous resection, infraction and crushing of turbinates, naso-antral opening, and so on).

Local treatment is aimed at procedures which facilitate ventilation and drainage, and which tend to restore the upper respiratory tract to normal. In those cases of excessive mucous drainage in which nucleoproteins are diminished, Ruskin[13] recommends the administration of 15 grains of nucleinic acid, three times daily.

Before outlining the constitutional measures, a general survey of nutrition, the autonomic nervous system and the endocrines is made. After the picture of the patient's constitutional make-up is concluded, which naturally takes into consideration allergy, the general outline of treatment is recommended, supplemented by measures which increase the defensive powers, as autogenous vaccines (Solis-Cohen's pathogen-selective vaccine, Kreuger's washed macerated antigen), Besredka's antivirus, Fosseman's heterophile antibody, bacteriophage and non-specific proteins.

SURGICAL TREATMENT

Surgical treatment consists of constructive, intranasal and external operations.

Constructive surgery includes the removal of diseased tonsils, adenoids and teeth, infected lymphoid masses about the naso and oropharynx, submucous resection of the nasal septum, infraction and crushing of turbinates, turbinotomy and turbinectomy, the removal of hypertrophies and neoplasms.

Intranasal surgery includes window resection of the naso-antral wall of the inferior meatus (naso-antral opening), naso-frontal opening, sphenoidal opening and ethmoidectomy.

External operations or the so-called radical procedures comprise the following: (1) operations upon the antrum through the canine fossa as described by Caldwell-Luc and modified by Denker. (2) The external frontal operation had its inception in trephining followed by external drainage which was done as early as 1882 by Kocher,[18] followed by Jansen,[19] who opened the frontal sinus but left the anterior wall intact and resected the inferior wall, and later improved upon by Ritter,[20] who practiced resecting the nasal process of the superior maxilla. (3) External ethmoidectomy appears to have been first done by Ogston[21] (1884), emphasized by Guisez,[22] and adopted by Coffin,[23] who later added some refinements. (4) The external radical frontal ethmoid-sphenoid operation was first described by Jansen[14] (1893), again brought to light by R. C. Lynch[15] (1921) and further modified by Sewall[16] and Smith[17] in recent years. (5) Transantral sphenoethmoidectomy, which was first described by Jansen[24] in 1894, consists of entering the ethmoid and sphenoid sinuses through the antrum by way of the canine fossa approach. (6) Pansinusectomy.[25] In discussing pansinus surgery one cannot refrain from bringing up the question of the conservative and the radical surgeon. There must be a discrimination made between conservative and radical surgical treatment, and no matter whether it is minor and considered conservative, or major and considered radical, when indicated it should be termed proper rational treatment. All chronic cases do not necessarily require removal of the mucosa, as the majority of cases recover without surgery.

Allergic patients whose mucosae are irreparably damaged require the same type of surgery, when it is indicated, as those who are free from allergy. The general surgeon does not refuse to remove an appendix, gallbladder or a kidney in the presence of allergy. Therefore, why should a rhinologist hesitate to remove diseased mucosa just because it exists in an allergic patient? The sinus can regenerate new mucous membrane

with restoration of function, while once a kidney is removed no regeneration nor restoration of function is possible, and a kidney is more vital to the life of the individual than is the sinus. It is not the extensive cases associated with allergy that are harmed by operation; on the contrary, they are benefited. It is the early allergic sinus cases in which the allergic phenomena in the sinuses dominate the picture, with little or no infection, that are harmed by being inadequately studied and operated upon.

Much dispute has arisen as to what to do for the patient afflicted with incurable pansinusitis. Many have been subjected to multiple operations of many types, some to unsatisfactory incomplete surgery, some to tinkering intranasal surgery, and others to "nasal laundry treatment" (a visit to the physician to have the nose washed out).

Intranasal surgery in the extensive case is unsatisfactory because anatomically it is impossible to remove completely the mucosa from supra-orbital cells overlying the orbit and infra-orbital cells about the roof of the antrum.

PANSINUSECTOMY

Before the clinical section of the Texas Ophthalmologic and Otolaryngologic Society, meeting conjointly with the Southern Medical Association, in San Antonio, Texas, in 1934, I presented a brief paper on pansinusectomy in which eleven cases were reported which had been operated upon two years previously. Up to date, or over a period of five years, 27 pansinusectomies have been done among a series of 50,131 clinic and private patients, eight of whom had an associated osteomyelitis. There was one complication, a fistula of the frontal in a diabetic patient with a luetic background in which osteomyelitis involved the frontal bone. Strange to say, this patient has never had a closure of the naso-frontal opening. There were no deaths.

Years Since Operation	No. Patients
4 to 5	3
3 to 4	4
2 to 3	7
1 to 2	7
Less than 1	6

Many of these patients had been previously operated upon.

NUMBER OF PREVIOUS OPERATIONS OF TWENTY-SEVEN CASES OF PANSINUSECTOMY

Number Patients	Number Operations
2	8
3	6
10	4
8	3
2	1
2	0

The operation briefly comprises the removal of the contents of all sinuses on one or the other side of the head or both in one operative procedure. It combines the external fronto-ethmo-sphenoid approach with the antrum and transantral spheno-ethmoid approach through the canine fossa. It permits the surgeon not only thoroughly to eradicate the contents of the frontal and maxillary sinuses, but more easily and more thoroughly to exenterate the ethmoids and sphenoid. It permits the surgeon to exenterate the overlying supra-orbital and infra-orbital ethmoid cells, as it affords a wide open approach to these regions far above through the external frontal incision, and below through the antrum at the same time.

A postnasal pack is used if the anesthetic is general. A small incision is made into the skin, bisecting the contemplated frontal incision near its center as a marker so as to assist in accurate closure. The anterior ethmoidal and naso-palatine vessels are ligated under general or may be caught with a hemostat and coagulated under local anesthesia. The antral incision in the gingivolabial junction is always sutured, as it is impossible to prevent the patient from forcefully blowing the nose. A rubber tube drain is inserted into the frontal sinus. The skin of the frontal wound is closed with Michel clips. The frontal tube is removed about the seventh day, the nasofrontal opening dilated and when indicated irrigated, and lastly the middle turbinate is conserved; therefore, the mucosal flap is not used, as normal function of the nose is to be maintained. Herein lies the debated question of whether nasal function should be sacrificed in an attempt to facilitate drainage of the frontal. The latter no doubt is essential, but on the other hand is it not possible to conserve the turbinate and at the same time maintain an open frontal sinus?

The operation is done under full vision, as the frontal incision is large, with comparatively little bleeding and danger. The convalescence is short, with little pain and disability, with excellent cosmetic result, and rarely with any recurrences.

CONCLUSIONS

Acute pansinusitis, like acute coryza, tends to be self-limited.

Diagnostically the mere detection of pus in a sinus should not suffice, but an attempt should be made to disclose the pathologic process, particularly in regard to the presence of irreversible changes, as many purulent sinuses recuperate

without surgery, and many metaplastic and degenerated sinuses in a stage of remission which require surgical extirpation may be free from pus.

Therefore, the indications for pansinusectomy should be based upon the pathologic condition of the mucosa rather than upon the past history of chronicity, although both should be taken into consideration.

Pansinusectomy is preferable to multiple sinus operations.

And finally the prevailing fallacy of some conservatives that "Patients as a whole would be better off by complete abandonment of radical sinus surgery" can no longer be accepted, since pansinusitis patients with irreparably damaged mucosae can be benefited only by proper or rational surgery, not by incomplete intranasal surgery, tinkering surgery or conservative procrastination.

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914 American Bank Building

THE DIAGNOSIS OF HEART WOUNDS*

By I. A. Bigger, M.D.,
Richmond, Virginia

It would seem that heart wounds should be diagnosed without great difficulty, yet I am convinced that a considerable percentage of them are not correctly diagnosed and therefore not correctly treated. The majority of patients with untreated heart wounds die, whereas at least one-half of them could be saved by surgical treatment.

Our experience in the Medical College of Virginia Hospitals is in accord with these statements, as we had not correctly diagnosed and sucessfully sutured a heart wound until 1930, but, since that time, we have operated upon eleven patients with wounds of the heart or intrapericardial portion of the great vessels, seven of them successfully. Only one of these eleven cases, a superficial bullet wound of the right ventricle, was operated upon apparently unnecessarily, and the patient made a good recovery. During this same period three other patients, two with wounds of the heart wall and one with a penetrating wound of the pulmonary artery, have been admitted but not operated upon. One of them was correctly diagnosed as having a superficial wound of the heart and treated conservatively. He recovered. One patient had a non-penetrating bullet wound of the wall of the left ventricle which was not diagnosed until it was demonstrated at autopsy, but as he had several other more serious injuries, it is probable that the heart wound was not important as a cause of death. The patient with a wound of the pulmonary artery showed dyspnea, cyanosis and marked distention of the veins of the neck when I first saw him, approximately twenty hours after the injury. He also had distant muffled heart sounds and evidence of a massive hemorrhage into the left pleural cavity. Immediate aspiration was advised, but death ensued as this was being carried out. Autopsy revealed a large collection of blood in the pericardial cavity and left pleural cavity, which had come from a wound 1 cm. in length in the left side of the base of the pulmonary artery, so death was due apparently to pericardial tamponade. If this patient had been operated upon within a short

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*From the Department of Surgery of the Medical College of Virginia.

time after the injury, he should have had a good chance of survival.

All told, there have been fourteen patients with wounds of the heart or intrapericardial portion of the great vessels admitted to these hospitals within the past five years. Eleven of them were stab wounds and three were bullet wounds. During this same period, we have had approximately 16,000 surgical patients. In other words, nearly 0.1 per cent of our surgical patients have had wounds of the heart or intrapericardial portion of the great vessels. This percentage does not seem unduly high when one considers the size and relatively exposed position of these vital structures. In fact, it seems remarkable that they are not injured more frequently, particularly when one considers that most assassins or would-be assassins are familiar, in a general way, with the position of the heart and the gravity of heart wounds.

HISTORY

The history is apt to be of much less importance in the diagnosis of such wounds than the physical findings, primarily because these patients are usually unable to give an accurate recital of facts. However, certain points in the history may prove helpful, for instance: a description of the size and position of the assailant, the strength of the blow and the size and length of the blade in case of a stab wound, and the kind of gun used in case of a bullet wound. As pointed out by Elkin,[1] the interval between injury and collapse is significant. This interval may be considerable, since it takes time for the pericardium to become filled with blood. Approximately 150 c. c. of blood may enter the pericardium before causing an appreciable increase in pressure, but, since it is a dense, inelastic, fibrous membrane, once it is filled, the addition of a small amount of blood will cause a sharp rise in pressure, which in turn will rapidly obstruct the venous return and thus result in circulatory collapse. The quiescent interval will, of course, vary with the size and location of the wound and also with the amount of exertion put forth by the victim, as, for example, by running after the injury has been received. Ordinarily, several minutes will supervene between the time of injury and collapse, but one of our patients with a stab wound of the right ventricle took up an ax and chased his assailant for about fifty yards, then collapsed. The violent exertion undoubtedly hastened collapse by increasing the force and frequency of the heart beat, thereby increasing the rapidity of filling of the pericardial sac.

The amount of blood lost externally is of some importance in arriving at a correct diagnosis, for in cases in which there is a small anterior wound in the pericardium, the blood is apt to be so completely trapped that there will be little external hemorrhage.

PHYSICAL EXAMINATION IN PATIENTS WITH CARDIAC TAMPONADE

The first finding of significance in such cases is the degree of circulatory collapse which is obviously out of proportion to the blood loss. This is especially striking when there is a small anterior opening in the pericardium, for, when the pericardium becomes distended in such cases, it is pressed against the anterior chest wall with the opening displaced away from the wound in the chest wall, thus preventing the escape of blood. The blood loss under such circumstances will be negligible and the associated circulatory collapse should be differentiated from shock, in that extremely rapid improvement in the condition of the circulation follows release of the intrapericardial tension.

Another important finding is distention of the superficial veins, especially of the neck. In patients with a marked degree of tamponade, the external jugular veins stand out like cords even though the radial pulse may be hardly palpable. The increased intrapericardial pressure, by obstructing the flow of blood through the venae cavae into the right auricle, causes a damming up of blood in the great veins, which is immediately transmitted to the cervical veins because of the absence of valves. It is important, however, when this sign is being looked for, that the patient be placed in the dorsal recumbent position with the neck veins on the level of or slightly above the auricles, since even in patients with shock there may be some fullness of these veins if the patient is in the Trendelenburg position.

The pericardial dulness is usually not appreciably increased in acute cardiac tamponade, but may become so when the hemorrhage in the pericardium has been present for a number of hours.

The heart sounds in the presence of tamponade are not only distant, but also have a muffled quality which is characteristic of the accumulation of fluid, under tension, within the pericardial cavity. It is important in evaluating this sign to listen carefully on both sides of the

sternum, for, in the presence of a left pneumothorax, the heart sounds may be distant on that side, but distinct to the right of the sternum, due to the shifting of the heart to that side.

Patients with a marked degree of heart tamponade show respiratory distress and pallor with cyanosis, whereas in shock and hemorrhage they show pallor without cyanosis. This appearance results from the combination of circulatory collapse and venous stasis. The blood pressure is usually low and may not be obtainable, but if it can be determined, the pulse pressure is apt to be lower than is found in hemorrhage. The pulse rate is also slower in the early stages than one would expect with the low blood pressure, but if the tamponade persists for several hours, the pulse rate increases. The early relatively slow pulse rate may be due to reflex stimulation of the vagus by increased intrapericardial pressure.

In typical cases of cardiac tamponade, the diagnosis should be made on the basis of the physical examination alone, but, in atypical cases, it is not made easily and may require the use of other diagnostic measures. Electrocardiographic tracings are of interest in connection with heart wounds, especially when there is injury to important coronary vessels, but are of no value in early diagnosis.

Early roentgenograms are apt to be misleading, as the pericardial shadow is usually not enlarged, but, if the increased pericardial tension persists, there will be a gradual increase in the size of the shadow. A positive finding is therefore of value, but a negative finding should be disregarded. In a previous publication[2] I called attention to a diminution of the cardiac pulsations on fluoroscopic examination of patients with tamponade, but at that time I was not sufficiently impressed with the importance of this finding. In a recent case in which there was a great increase in the intrapericardial pressure, the fluoroscopic shadow of the heart, when viewed while the patient was holding his breath, appeared almost immobile.

CASE REPORT

The history of this patient is of interest in this connection. J. B., a colored man 20 years of age, was admitted to the Saint Philip Hospital at about 10:30 p. m. on August 27, 1935, about thirty minutes after having been stabbed in the left side of the chest. He was in shock, with a systolic blood pressure of 80 and pulse of poor volume. There was a stab wound one interspace above and slightly medial to the nipple; there was no subcutaneous emphysema and no signs of pneumothorax were noted. It was stated on the admission note that the heart sounds were clear, but one hour later they had become distant and at this time it was noted that the neck veins were distended, and, in spite of the fact that the patient had received 700 c. c. of normal saline solution intravenously, the pulse volume had not improved. The heart sounds became more distant and finally almost inaudible. He received 1,500 c. c. of normal saline solution and 500 c. c. of whole blood intravenously, following which his condition improved temporarily and his systolic blood pressure rose to 90. Fluoroscopic examination at this time showed some blood at the base of the left pleura and an apparent fixation of the cardiac shadow, but a roentgenogram showed no enlargement of the shadow. A short time later his general condition began to change, his blood pressure slowly dropped to 70 systolic, and when I first saw him at 5:00 a. m., approximately seven hours after the injury, his systolic blood pressure was 70; his pulse rapid, slightly irregular, and of poor quality. There was dyspnea, the heart sounds were almost inaudible, and the veins of the neck were greatly distended. Fluoroscopic examination was again done and showed little if any enlargement, but an almost complete immobility of the cardiac shadow. On the basis of these findings, a diagnosis of stab wound of the heart with cardiac tamponade was made and the patient immediately carried to the operating room.

Under local anesthesia the third, fourth and fifth left costal cartilages and short segments of these ribs were removed, the internal mammary vessels doubly ligated and divided, and the pleura freed and retracted toward the left, to expose the entire anterior portion of the left side of the pericardium, which was dark and extremely tense. A longitudinal incision was made in the pericardium and a large amount of dark blood escaped. It was found that the wound involved the left border of the left ventricle, which made exposure difficult, so another incision perpendicular to the midportion of the original pericardial incision was carried to the left for a distance of 2½ inches. Even then it was necessary to insert a retractor in the pericardial sac to obtain adequate exposure. This apparently caused the patient severe pain, so the anesthetist was instructed to give him a light nitrous oxide oxygen anesthetic. Immediately after this was started, he became excited and was restrained with difficulty; during this time an attempt was made to control the hemorrhage by digital pressure. As soon as the patient quieted down, the wound, which was approximately 1 cm. in length and penetrated the left ventricular cavity, was exposed and closed with interrupted sutures of fine silk. The incisions in the pericardium and chest wall were closed with interrupted sutures without drainage. The blood pressure, which at the beginning of the operation was recorded as 70 systolic and 60 diastolic, immediately rose to 120 systolic when the pericardium was opened and remained at approximately a normal level throughout the rest of the procedure.

An electrocardiogram made just before operation showed a normal curve, but one made four hours later showed the changes characteristic of coronary artery occlusion, and these changes were still present when the last electrocardiogram was made on October 14, 1935, approximately six weeks after the injury.

Fluoroscopic examination made three weeks after operation showed normal mobility of the cardiac shadow.

The patient's convalescence was uneventful except for

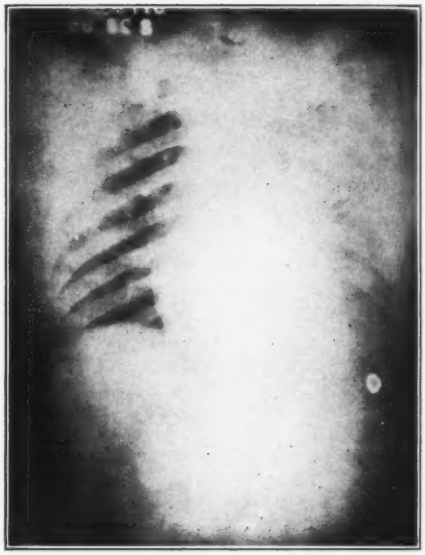

Fig. 1
Roentgenogram of chest, showing the cardiac shadow within normal limits. On fluoroscopic examination at this time, the cardiac shadow appeared almost immobile.

a slight elevation of temperature, which persisted for about two weeks. He was discharged on October 6, 1935.

COMMENT

It is to be noted that roentgenograms in this case did not show an enlargement of the pericardial shadow, but, when viewed under the fluoroscope, the cardiac pulsations were hardly detectable. It is my impression that this sign, which seems to have been overlooked, is of importance in the diagnosis of cardiac tamponade and may be of value in determining its degree. It is even possible that it may help in some cases in deciding whether operation is indicated or not, even though a diagnosis of heart wound has been made. In other words, although there is evidence of heart wound, but apparently only a moderate degree of tamponade, as indicated by the physical signs and fluoroscopic examination, one might well consider the advisability of therapeutic aspiration, as suggested by Singleton.[3] If there were a rapid recurrence of the tamponade, operation should of course be done.

Aspiration of the pericardium may also be of value in the diagnosis of doubtful cases. The aspiration of blood from the pericardial sac would be positive proof of injury to a branch of the coronary artery or penetration of one of the cardiac chambers. We have not so far used this procedure, although, as previously stated, it was advised in one case, but the patient died before it could be carried out.

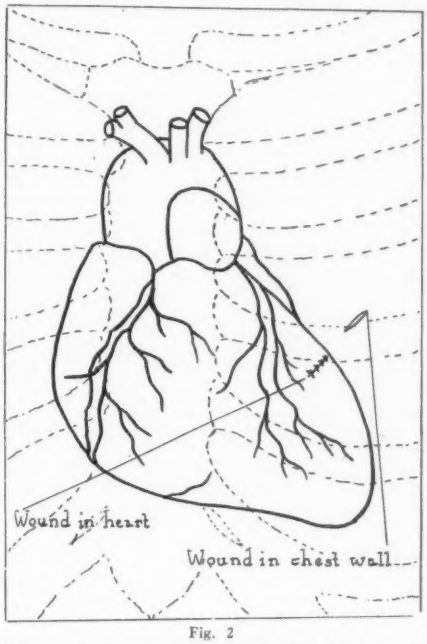

Fig. 2
(Same case) Diagram showing the location of the wounds in the chest wall and heart.

Fig. 3
(Same case) Photograph of patient taken five weeks after operation, showing the location of the incision.

PHYSICAL EXAMINATION IN PATIENTS WITH CONTINUED HEMORRHAGE

Patients who have a free communication with the outside or with the pleural cavity are apt to present a much more difficult diagnostic problem than those who develop tamponade. If there is a free opening to the outside and one is fortunate enough to see such patients sufficiently early, the volume of blood lost with each heart beat will probably lead to the correct diagnosis. When there is a communication with the pleural cavity, the signs of massive intrapleural hemorrhage will develop rapidly and the diagnosis will usually lie between injury to the heart and injury to one of the larger vessels of the chest wall, especially the internal mammary artery. The signs of pericardial tamponade will be absent, but there are certain signs which may occur in association with such injuries and, if present, are of some diagnostic value. The one observed most frequently, a splashing or churning sound synchronous with each heart beat, we have noted three times, and on two occasions it led to a correct diagnosis. Unfortunately, one of the patients died before the wound, a large defect in the wall of the left ventricle, caused by a bullet, could be closed. Even though a definite differential diagnosis cannot be made, evidence of continued hemorrhage is an indication for immediate operation.

Fig. 4

Roentgenogram of chest of patient with bullet wound of pericardium, showing a small collection of air between the pericardium and epicardium.

In an occasional patient with a heart sound, air from the lung will enter the pericardial sac along the track of the bullet or knife blade, as the case may be, and may be demonstrated by roentgenograms and thus be the means of making a diagnosis of pericardial injury. Usually, however, when the diagnosis is made on the basis of this finding, the injury is not sufficiently serious to justify operative interference.

LOCALIZATION OF INTRAPERICARDIAL WOUND

After the diagnosis of heart wound is made, an attempt should be made to localize it. Obviously, this cannot always be done with accuracy; but by a careful study of the superficial wound and the direction taken by the instrument, whether it be bullet or knife blade, a reasonably accurate idea can usually be obtained as to the structure injured. The rapidity of onset of collapse may be of some importance in this connection, as, generally speaking, with wounds of moderate size, the onset of collapse will be more rapid with injury to the left ventricle or great arteries and less rapid with injury to the auricles or venae cavae. On the other hand, in very small wounds, the thickness of the wall of the left ventricle may lead to less rapid collapse than would occur in structures with thinner walls.

Localization of the wound is important in that the type and location of the incision should depend to a considerable extent upon the point of injury. If the left ventricle or left portion of the right ventricle is involved, the left parasternal approach should be used; whereas, if the injury involves the right portion of the right ventricle, the right auricle, or venae cavae, a much better exposure can be obtained by making a right parasternal approach. Also, if the wound appears to be near the apex of the heart, the fifth and sixth cartilages and possibly the fourth should be excised, while an adequate exposure of the base of the heart can be obtained only by resecting the third and fourth, and possibly the fifth cartilages, and occasionally by dividing the second cartilage and retracting it upward. The importance of this is illustrated in one of our cases with a wound of the intrapericardial portion of the superior vena cava, where a high right parasternal approach was made, which gave an excellent exposure of the wound. If an attempt had been made to approach this lesion from the left side, it would have been extremely difficult to repair it and division of the sternum would probably have been necessary.

SUMMARY

The diagnosis of heart wounds should not be especially difficult if the characteristic symptoms and signs are kept in mind, but it is probable that a considerable percentage of such wounds are not correctly diagnosed and therefore not properly treated. The fact that most of our cases were correctly diagnosed may be attributed largely to the care with which patients with wounds in the cardiac area were examined by the surgical house officers.

The history is usually of no great value, because the patient's observations under such circumstances are apt to be unreliable.

The signs of cardiac tamponade are distention of the neck veins, distant and muffled heart sounds, circulatory collapse out of proportion to the amount of blood lost, pallor with cyanosis, and relatively low pulse rate. They vary directly with the degree of tamponade.

In addition to the physical signs, certain other findings may be of help in making a diagnosis in doubtful cases. The most important of these is an apparent immobility of the cardiac shadow on fluoroscopic examination.

When there is a free communication either with the pleura or the outside, there may be no characteristic findings. The only finding which is apt to be of differential diagnostic value is the splashing sound synchronous with the heart beat. However, if there is evidence of continued hemorrhage, this in itself is a definite indication for immediate surgical intervention.

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DYSFUNCTIONAL UTERINE BLEEDING*

By CATHARINE MACFARLANE, M.D., F.A.C.S.,
Philadelphia, Pennsylvania

Dysfunctional uterine bleeding is a term applied to atypical bleeding from the uterus in the absence of demonstrable pelvic pathology or causative systemic disease. The bleeding may take the form of profuse, prolonged or too frequent periods. It may take the form of spotting between periods. It may take the form of continuous bleeding with or without a periodic monthly increase.

This disturbance of function is distributed fairly evenly from puberty to the menopause with the exception of a marked rise in the fourth decade. About one-third of all cases occur in women between forty and fifty years of age. About half of the women are married and have borne children.

In most instances, dysfunctional uterine bleeding runs a mild and chronic course. It may, however, assume the proportions of a grave emergency. Severe secondary anemia, with hemoglobin of 50 per cent or under, occurs in about 20 per cent of the cases. Weibel[1] reported a girl of 15, bleeding for two years, who was brought into the hospital exsanguinated and died before operation could be performed. Frankl[2] reported a woman of 36 who had been flowing continuously for five months. She was admitted to the hospital exsanguinated with a pulse of 120 and died following a vaginal extirpation. Graves reported the death of a young woman within twenty-four hours after admission to the hospital.

The cause of dysfunctional uterine bleeding is not known. Many theories have been advanced to account for it. These theories have accurately mirrored the trends of medical science of the period. Today the theory of endocrine dysfunction prevails.

The first important contribution to an understanding of this subject was made in 1919 by Robert Schroeder[3] of Kiel. He reported twenty-four cases in which both endometrium and ovaries were examined. Examination of the endometrium showed cystic hyperplasia. Section of the ovaries showed absence of ovulation, per-

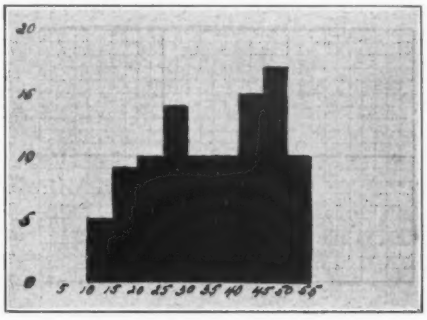

Fig. 1
Age incidence.

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*From the Department of Gynecology, Woman's Medical College of Pennsylvania.

Fig. 2
Uterus and appendages removed from a 26-year-old woman who had been bleeding atypically for 13 years.

sistence of mature unruptured Graafian follicles, and absence of corpus luteum formation.

Graafian follicle persistence is attended by the continuous production of female sex hormone. Stimulated by this continuous stream of female sex hormone, the endometrium becomes thick, spongy and hyperemic. It never enters into a normal secretory phase. It is never shed down to the basement layer. It may bleed more or less continuously. According to Schroeder this bleeding comes from superficial necroses the result of capillary thrombosis. According to Novak and Hartman, the bleeding comes from capillary vessels made permeable by an as yet undiscovered bleeding factor. Whatever the origin, normal uterine contractions cannot control bleeding from the swollen, spongy tissue into which the endometrium has been transformed.

A second group of cases was discovered by Pankow[4] in 1924. Upon curetting patients whose irregular bleeding was post-menstrual in type, he obtained small, scanty fragments of endometrium not covered by epithelium. This endometrium contained collapsed glands, lined by low epithelium which showed no evidence of secretion. He termed this condition "defective shedding and regeneration of endometrium" and attributed it to corpus luteum deficiency. The condition of the ovaries was not observed.

Pankow's findings were confirmed by Baniecki,[5] Robert Meyer[6] and recently by Traut and Kuder,[7] of New York. The latter investigators found this condition of "defective shedding and regeneration" in 10 per cent of a series of cases of dysfunctional bleeding. Hormonal studies on four of these patients showed an almost complete lack of estrin and a low prolan titer.

Another type of abnormal endometrium has recently been reported by Traut and Kuder in their series of cases of dysfunctional bleeding. They term this condition "irregular maturation of the endometrium." They attribute it to an irregular corpus luteum effect on an endometrium otherwise in the proliferative phase.

Curettings from thirty-six cases of dysfunctional uterine bleeding, examined by Dr. Mollie Geiss in the laboratory of pathology of the Woman's Medical College of Pennsylvania, showed hyperplasia of the endometrium in twenty-four cases, defective shedding of the endometrium in nine cases and defective ripening of the endometrium in three cases.

Since Zondek[8] (1926) demonstrated the relationship between the ovary and the anterior lobe of the pituitary, the phenomena of absence of ovulation, Graafian follicle persistence, absence or deficient formation of corpora lutea have been attributed to diminished production of the anterior pituitary hormone, prolan.

In its turn, the pituitary gland does not stand alone. As a link in the endocrine chain, it is affected by disturbances in all the other glands. Thus some patients with dysfunctional bleeding are obviously hypothyroid in type while, in several patients who have come to autopsy, cysts of the pineal gland have been found. The possibility of parathyroid, adrenal or even pancreatic influence must be admitted.

According to the present viewpoint, the factors underlying dysfunctional uterine bleeding extend from the pelvis to the sella turcica and beyond. The consideration of the treatment of patients presenting this condition opens up the whole field of modern medicine. The evaluation of any given line of treatment is difficult because spontaneous readjustment of the disturbed endocrine imbalance may take place. The situation is fur-

ther complicated by the fact that dysfunctional bleeding has a tendency to recur. Thus a patient relieved by a given line of treatment at the hands of one physician may appear a few months later in the office of a colleague with a return of dysfunctional bleeding.

For these reasons, the treatment of patients with dysfunctional bleeding is a topic of continuing interest. I have no new nor 100 per cent successful remedy to offer. In lieu thereof I propose to review briefly the rather bewildering array of therapeutic measures now in use and the indications for their use. I propose also to present a summary of the results of treatment in one hundred consecutive cases occurring in my practice and in that of my colleagues in the Hospital of the Woman's Medical College of Pennsylvania and the Woman's Hospital of Philadelphia.

Since mild cases of dysfunctional uterine bleeding may be relieved by increasing the contractile power of the uterine musculature, treatment is usually commenced by the administration of such time-honored drugs as ergot and pituitrin.

The procedure next in frequency is removal of the bleeding endometrium by means of curettage. Actually this procedure has greater diagnostic than therapeutic value. A careful examination of the curettings must be made for the purpose of ruling out malignancy, a possibility which must be considered in every case, especially in older women. Microscopic examination of the curettings may shed light on the nature of the underlying disturbance of ovarian function. Hyperplasia of the endometrium points to absence of ovulation and excessive production of female sex hormone. Delayed shedding and regeneration point to deficient luteinization. In this latter group of cases, curettage is often followed by recovery (Pankow, Traut and Kuder). This may be the result of reflex stimulation of the pituitary which in turn stimulates the ovary.

In the large group of cases characterized by hyperplasia of the endometrium, stimulation of ovulation and luteinization of follicles is indicated. This can be brought about in experimental animals by implantation of the anterior lobe of the pituitary and by the administration of anterior pituitary like substances derived from the urine of pregnant women or from the placenta. This fact has led to the therapeutic application of these substances in this type of dysfunctional bleeding.

Among the preparations used are prolan (Schering), "follutein" (Squibb), anterior pituitary like hormone (Collip) and "antuitrin S." (Parke, Davis). These are given hypodermically, 100 rat units daily or twice daily to bleeding cases. After the bleeding ceases, the dose is diminished. It may eventually be reduced to four or six doses per month given during the three days preceding the menstrual period.

Surprising results are often observed. In one of my patients, a woman 37 years old, continuous bleeding of seven weeks' duration stopped abruptly after the administration of 100 rat units of "antuitrin S" daily for four successive days. Novak and Hurd[9] reported cessation of bleeding after one or two doses. This form of endocrine therapy is credited with 50 to 80 per cent of cures. It seems to be the best method of treatment available today. In young women and in adolescent girls, it should be given a long and thorough trial. When it fails, other endocrine preparations may be indicated, for example, thyroid medication in patients with low basal metabolism and hypothyroid stigmata. Corpus luteum is theoretically indicated as a form of substitution therapy. In the large majority of cases it fails, probably because the usual dosage is totally inadequate (Marrian and Parkes[10]).

The failure of endocrine therapy in a considerable proportion of cases has led to the development of other lines of treatment. Efforts have been directed towards arresting the bleeding by increasing the coagulability of the blood. This may be accomplished by the administration of calcium by mouth or intravenously. It may be accomplished by repeated transfusions of whole or citrated blood. In severe cases, the latter procedure is a life-saving measure.

It may also be accomplished by irradiation of the spleen. Stephan[11] first called attention to this fact. Hornung and von Mickuliz-Radecki[12] treated a series of forty gynecological cases by this method. In most of these women the bleeding tapered off in one to three days. In thirty, the cessation was temporary. In ten, the atypical bleeding was permanently relieved with a return of the normal menstrual cycle. Their permanent results were obtained chiefly in juvenile cases. This form of treatment may be a life-saving procedure in acute cases when transfusion cannot be performed.

Efforts have also been directed towards diminishing the permeability of the vessel walls. Thus Peck and Goldberger[13] reported twelve cases of dysfunctional uterine bleeding treated by moccasin venom with satisfactory results in five cases. Frank[14] writes enthusiastically of this form of treatment. Runge,[15] working along similar lines,

reported seven patients with dysfunctional bleeding treated with hypodermic injections of cevitamic acid. Six of these patients were relieved.

Surgical methods for the relief of dysfunctional bleeding comprise resection of both ovaries or removal of one ovary, high hysterectomy or wedge-shaped excision of the fundus, an operation called fundectomy.

Operations diminishing the amount of ovarian tissue may benefit by removing persistent Graafian follicles. The prognosis of fundectomy or of high hysterectomy is uncertain. The former creates an obstetric hazard, the latter destroys the possibility of pregnancy.

In women approaching the menopause, complete arrest of menstruation by means of salpingo-öophorectomy or supravaginal or vaginal hysterectomy is one of the procedures of choice. This may become necessary in the treatment of severe cases in younger women.

Irradiation of the ovaries is probably the most important method of treatment available today. In women approaching the menopause, after malignancy has been excluded by means of diagnostic curettage, dysfunctional bleeding may be permanently cured by means of full doses of radium or x-ray. An intra-uterine application of 1,200 mg. hours of radium will be followed immediately or within a few weeks by a complete cessation of uterine bleeding, dysfunctional and physiological as well. For this cure the patient pays the price with a premature menopause. Fortunately the vasomotor and nervous symptoms of the irradiation menopause are relatively mild.

In younger women, small doses of radium or x-ray may be required to arrest persistent or recurrent bleeding which does not respond to endocrine therapy. In adolescent girls an intra-uterine application of 300 mg. hours of radium checks the stream of female sex hormone by producing atresia of the persistent Graafian follicles. Such doses do not destroy the primordial follicles. After their use the atypical bleeding is checked, and scanty regular periods are the rule. Six months or a year later, the atypical bleeding may recur. When this happens, another small dose of radium may be given. In this way the patient may be tided along for a number of years without permanently losing her menstrual flow or reproductive function.

In these women of child-bearing age, the satisfactory results are attended by the disturbing possibility of injury to the ovaries or germ plasm with resultant sterility or the birth of abnormal offspring if pregnancy should occur.

Werner[16] in 1925 reported 184 pregnancies in women whose ovaries had been exposed to radium or x-ray treatment before conception. Sixty-eight of these pregnancies terminated in abortion; one hundred and eleven children were born alive. Five of these children presented congenital defects.

Similar series of children born after preconception ovarian radiation have been reported with no congenital defects. Opinion is divided as to whether the defects are the result of the irradiation or not. Doederlein[17] summed up a discussion of this subject by concluding: "The changes in the germ plasm brought about by damage to the ovaries act as recessive characteristics which may not be manifested until later generations."

In an attempt to throw light upon this question, de Renyi and Douglas Murphy[18] (1932) investigated the effect of irradiation on the albino rat. They found that the first effect of irradiation upon the oocyte was to destroy its capacity for fertilization. Assuming that analogous conditions prevail in human beings, they conclude that the congenital defects found in children born after preconception ovarian irradiation are not the result of the irradiation.

Pending the final solution of this important question, efforts have been directed towards relieving dysfunctional uterine bleeding by means of irradiation of the pituitary gland. This method was first used by Hirsch,[19] of Hamburg, in 1922 in patients with myomatous tumors of the uterus. He obtained an amenorrhea of six to seven months' duration followed by regular menstruation. Satisfactory results obtained by this means in cases of dysfunctional bleeding have been reported by Werner,[20] Ford and Dripps,[21] Kaplan[22] and others. Small doses of x-ray are directed towards the pituitary with the object of stimulating this gland to increased activity. Increased activity of the anterior lobe of the pituitary, in turn, stimulates the ovaries to normal function, ovulation and luteinization, with the reestablishment of normal shedding and regeneration of the endometrium. The effect of irradiation upon the nerve centers adjacent to the pituitary and upon other intracranial structures is yet to be determined.

From the great variety of methods used in the treatment of dysfunctional uterine bleeding, each physician must make his or her own choice in the treatment of the individual patient. The methods used in the treatment of 100 consecutive

cases and the results obtained are shown in the accompanying charts:

METHODS USED IN TREATMENT OF 100 CONSECUTIVE CASES

Radium as a first or last resort	55
Curettage only	15
Curettage and Ant. Pit.-like sex hormone	6
Anterior Pituitary-like sex hormone	10
Corpus luteum	3
Resection ovaries	3
Hysterectomy with bilateral salpingo öophorectomy	1
Snake Venom	2
Irradiation of Spleen	5

RESULTS OF TREATMENT IN 100 CONSECUTIVE CASES

	Cases	Relieved	Not Relieved
Hysterectomy with bilateral salpingo öophorectomy	1	1	0
Snake Venom	2	2	0
Resection of ovaries	3	1	2
Corpus luteum	3	0	3
Irradiation of Spleen	5	5	0
Anterior pituitary-like sex hormone and curettage	6	4	2
Anterior pituitary-like sex hormone	10	7	3
Curettage	15	5	10
Radium	55	55	0

One of our patients, a nurse 21 years of age, received an intra-uterine application of 350 mg. hours of radium on account of profuse periods occurring every fourteen days. After treatment she menstruated every eighteen to twenty-one days, the flow being normal or scanty. Several years after irradiation she married. Her first pregnancy, soon after marriage, terminated in an early miscarriage. Seven years after the radium treatment she was delivered prematurely of a stillborn child at seven months.

Another young woman, 20 years old, after curettage and medical treatment failed, received 350 mg. hours of radium for profuse and constant bleeding of six years' duration. Three years later this dose had to be repeated. Soon after this, the patient married. She never became pregnant. Recurrence of bleeding necessitated repeated applications of radium at intervals of several years.

Two other young women developed myomatous tumors of the uterus, one 16 years, the other 12 years, after an intra-uterine application of radium. No cases of post radium leukorrhea or cervical obstruction have come to our knowledge.

CONCLUSIONS

From this brief consideration of the subject, it is apparent:

(1) That dysfunctional uterine bleeding is not a separate and distinct disease, but is rather the outward and visible sign of different kinds and different degrees of disturbance of the endocrine group.

(2) We have no specific remedy for this condition.

(3) Treatment of each case must be undertaken as an individual problem in which the severity of the symptoms, the patient's age, her social state, her occupation must be taken into consideration together with the remedial measures available.

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A CHANGING GYNECOLOGY AND CONSIDERATION OF GYNECOLOGICAL ERRORS*

By ELBERT DUNLAP, M.D.,
Dallas, Texas

"Effort and expectation and desire
and something evermore to be."

These words of Wordsworth can well be applied to present day medicine characterized by unending revolutionary changes in theory and practice. Medicine has been for many years in a pathological era. During this period pathology greatly influenced the profession, and workers in this field have done much to place the science of medicine in the splendid position it occupies today. The pathological period, if we may so call it, has been interesting, useful and most in-

*Chairman's Address, Section on Gynecology, Southern Medical Association, Twenty-Ninth Annual Meeting, St. Louis, Missouri, November 19-22, 1935.

structive. We are fortunate to be able to follow the phenomena of clinical medicine with an assurance that, at least in a general way, one could know the changes being caused by disease. What wonderful pictures the pathologists have unrolled when exhibiting their gross specimens and minute microscopical sections! There will be no passing of interest in pathology; it is likely, however, that it will no longer dominate medicine. It may be that we are, even now, in a greater era in which physiology will markedly influence the advances to be made in our science. From all parts of the world we are receiving authentic evidence of startling advances in this branch of medicine.

Information from physiologists may not be so readily comprehended as that coming from the pathologists, as it is based upon theories and evidence which to many may seem intangible. Walter Duranty declares: "Physiology is the most theoretical of all sciences." Certainly in the field of gynecology, physiological studies and experiments have developed astounding facts which have opened vast and uncharted fields for investigation. This research will in all probability soon bring practical working formulas through which great and lasting benefits will accrue to gynecological patients. Physiology of the generative organs has been a series of events or changes marked, perhaps, by evolution. In all other branches of medicine the physiologists have been accomplishing many things which are constantly upsetting our ideas until now we are about to have a new conception of many functions of the human body. The new physiology of the nervous system is quite intriguing and is intimately associated with that of the endocrine glands which vitally influence the generative organs of the female. Chemistry of the body is closely related to physiology and the advanced work of the chemists is quite as revolutionary as that of the physiologists. Only recently one of the foremost chemists of the world, speaking before the American Chemical Society, said:

> "In the growth of body cells there are at least five key chemicals: enzymes, activators, inhibitors, vitamins, and hormones. The enzymes, minute substances which regulate the human body's chemistry, offer a new clue to the cause of cancer."

Chemistry has given us the crystalline substances, theelin and theelol, and a great number of synthetic preparations now recognized to be of definite therapeutic value.

In physics much is being done to halt and cure disease. Those expert in using x-rays and radium have available equipment and technics which are capable of giving better results than ever before. Irradiation has wrought remarkable changes in the treatment of cancer of the uterus. Ill effects following the use of x-rays and radium occur in the practice of expert operators as well as inexperienced workers. Dr. Quitman Newell has made some interesting studies of damages produced by these agents. The physicists declare that the atom, to which we have given reverence for a long time, must now be divided into components. If this is true, much scientific data will have to be changed. Think of the possible pathological processes which may be caused by changes in the highly organized and almost intangible chemical substances of the body. To add to our confusion of thought concerning the endocrine system, Dr. Collip now presents his theory that every hormone probably has an antihormone. It seems that we are to have greater difficulty in trying to strike a balance as to what disturbance exists and what therapy to use when the practical side of disease is presented. As mathematics has become an integral part of all modern sciences, medicine finds that mathematical equations are factors in almost every discussion connected with our modern, changing profession. Every gynecologist of necessity needs some very accurate mathematical knowledge. It would be a good thing if all could more fully comprehend these equations and the extreme accuracy of calibration and magnification that makes possible the advancement that science is showing. Think of the accomplishment of Dr. Edgerton, of the Massachusetts Institute of Technology, who has perfected a camera which snaps stop motion photos at the speed of 1/100,000 of a second. Physiology, physics, chemistry and mathematics are tremendous factors in a changing medicine in which gynecology plays an important role.

It would be quite unfair not to include in our progress the splendid work of clinicians, both in medicine and surgery, who are laboriously developing informative data and improvement in treatment and technic. Gynecologists certainly have succeeded in placing their specialty on a firm clinical basis, which is developing rapidly but in an orderly manner. Morbidity and mortality in gynecological work have been markedly reduced. This is especially true in pelvic surgery, which is much more conservative and beneficial than it formerly was. It is most important that much more general thought be given to the indications for treatment, both medical and surgical. Clinical gynecology is

now marked by refinements of technic, a better knowledge of the connective tissue spaces of the pelvis, the lymphatics and the sympathetic nervous system. It is pleasing to know that many of those working in the field of gynecology have been outstanding in the development of endocrine knowledge and a good number of the members of this Section are conceded to have the most advanced information available on the subject. Dr. Meigs, of Philadelphia, in his "Practice of Midwifery," one hundred years ago (1838), in writing of the difference of opinion concerning the muscular fibers of the womb, said:

"If it were known and demonstrable there would no longer exist any dissidence concerning it, since whatever is clearly demonstrable ceases to be a subject of dispute or doubt." Again in reference to menstruation: "What is the proximate cause of the periodicity I deem it bootless to inquire, since this, like most other vital processes, has a sort of metaphysical subtlety which defies all endeavor to grasp or retain it."

By the way, this author suggested the source of menstruation to be the uterine artery. Many things in gynecology are not clearly demonstrable and mistakes may be expected. In the first part of this paper attention has been called to the multiplicity and complexity of some definite scientific factors which are influencing the knowledge of the reproductive organs of the female. These have brought about decided changes in the theory and practice of gynecology and justify a discussion of some of the errors which obviously occur. Carlisle wrote:

"If we do not learn by our mistakes, we shall continue to make them."

Professional mistakes usually bring a sense of shame at least to those who have a normally sensitive make-up; but often because of embarrassment we put them aside and do not learn and profit from them as we should. Medicine is not and never will be a fixed science, as there is a definite variability in disease and in patients which gives a constant and rather large source of misunderstanding and conflict of opinion. It is tremendously interesting to contemplate the unknown in any field of endeavor. In our work there is much of the unknown, for example, heredity, constitution, individual resistance, environment, different manifestations of the same disease. All of these should be a part of any worth while analytical study. It is necessary to have anatomical knowledge of the normal structures and definite ideas of the normal functions of the generative organs if we are to attempt intelligently to determine the causes of disease and the seriousness of the pathological processes. Nowhere in the body do we find such intimate anatomical and physiological arrangement and opportunity for overlapping pathology and confusion of symptomatology as with the female generative organs. Perhaps the most distressing cause of error is imperfect fundamental academic and medical information in medical men. This, however, is being changed by the higher entrance requirements of medical colleges and very much better medical teaching. The largest number of mistakes are inexcusable, as they are caused by negligence, laziness and the lack of proper study of the individual case. Unsatisfactory results are often due not to a lack of knowledge, but to a failure properly to apply the information one possesses.

Contraceptive advice, legalized abortion, sterilization, eugenic marriages, all are rather radical subjects now being freely discussed in all parts of the world. Gynecologists should be greatly interested in them and the discussions concerning them, as medical opinion will be sought in developing legislation which is certain to be proposed. It will be inadvisable for organized medicine and the individual physicians to favor extreme laws governing these vital subjects, as there would be great danger to our social order should unscrupulous politicians and office holders use this power improperly.

A recent book, "The New Nobility of Blood and the Soil," by the Minister of Agriculture of Germany, declares that the office of German marriage clerks should have a "Minister of Breeding" attached to them. The author urges that girls be divided into four groups, the first group consisting of only 10 per cent each year whose marriage in every respect seems desirable. These should receive every assistance. The other groups of girls have sharp restrictions; those in the third group should be forbidden to wed unless they are sterilized. The book, in discussing illegitimate children, says:

"From the viewpoint of improvement of the race the first consideration is that of hereditary value, that is, origin; and only in the second place does there enter the question of legitimacy or illegitimacy."*

After hearing this, I think you too will feel that we should be careful in our efforts to establish legislation dealing with sterilization, legalized abortions, etc. It is also obvious that physical ill effects to females may frequently follow such attempts to regulate their sexual lives. A word of warning against the use of pastes and other intra-uterine medication to

*Associated Press dispatch, New York Times, August 18, 1935.

produce abortions: they are dangerous and should not be advocated.

With ten million women employed for wages outside of their homes and many of them having the additional burden of household work and worry after their business hours, it would be an economic blunder to underestimate the ill effects of this work upon their reproductive organs. Worry, fatigue and exhaustion aid in producing disease. In this unstable period of the depression they have been more serious factors with female patients than ever before. Untreated, or inadequately treated, disease means an enormous loss for employes and employers. Biologically, women are not as yet ready for some of the serious burdens of gainful occupations and the demands of drinking, smoking, and some of the other modern pastimes. Some of the inaccuracy of our work is due to the rather common practice of both patients and physicians of overestimating the benefits of various treatments. This is in reality due to psychic influences. The patient tells the physician that she is better. The physician immediately tells the patient that she is improved. As a result both patient and physician are in a vicious circle which often is rudely broken and leaves the patient in a condition which is worse than when she began treatment. Subjective symptoms obviously are invaluable in diagnosis; but they should be examined carefully to avoid error. Another almost unpardonable practice is creeping into gynecological work, namely: the reporting of a large number of cures or unusually successful surgical procedures without adequate and authentic records to substantiate the reports. This is, after all, another sharp practice. In the United States our political, business and individual lives are unfortunately being greatly influenced by "sharp practices" which certainly will lower the moral standards of our citizens. A determined effort should be made to protect the highly technical phases of gynecology from this danger. Medical statistical data at its best may be far from accurate. Extra-abdominal diseases often produce symptoms which must be differentiated from those arising from abdominal conditions. Gastro-intestinal and gynecological symptoms are often closely related. Referred pain may be from the autonomic nervous system.

Head has demonstrated that often when visceral organs are exposed to stimuli, impulses are poured into the central nervous system, and areas on the surface of the body, in connection with these segments of the cord become tender, in fact painful. These findings of Dr. Head may influence diagnosis and make correct interpretations of pain and its source most difficult.

Hilton, in his admirable essays, "Rest and Pain," seventy years ago described the chief natural therapeutic agent, rest, as necessary to healthy action and repair of the body structures. It is unbelievable that we often fail to apply this commonsense teaching. Every gynecological condition accompanied by infection or inflammation should have the privilege of absolute physical and sexual rest, and if possible a tranquil mental state. By following this procedure as a basis of treatment, nature will be given a chance to develop resistance, lives will be saved, morbidity and mutilating operations will be lessened, and a good per cent of cures may be effected. It is thought that 70 per cent of the cases of pelvic inflammatory diseases may be made symptom-free by carefully conducted conservative measures. Do not fail, however, to think of the serious end results in some of these infections, namely, generalized peritonitis, blood stream infection and occasional gangrene or necrosis of the uterus and pelvic structures. The cause of endometriosis is still a subject of much interesting controversy even though there is much definite information on the other phases of this disease.

Robert Meyer, of Berlin, has written brilliantly of the function of new growths of the ovary, especially of the rare granulosa cell and the arrhenoblastoma. He insists that the function of a growth corresponds exactly to the function of the tissue from which it arises. The granulosa cell tumor produces unusual evidence of femininity and the arrhenoblastoma produces masculinity. Drs. Taylor, Wolferman and Krock, of Fort Smith, have reported an authentic case of the latter which is most interesting. All developing tissues are subject to hazards, so the possibility of congenital and hereditary defects should not be overlooked when studying young women.

It has taken many years of thought and experimentation (Berthold, 1849) to develop endocrinology to its present status. It is interesting to note that this tremendous amount of work has as yet made available only a few biological agents of therapeutic unquestioned value. No phase of medicine has greater scientific effort behind it than the subject of internal secretions which profoundly affect the female through the delicately balanced and correlated elements of the endocrine glands. Normal genital function in the female is dependent upon synchronism of

a number of elements. Bear in mind that processes in the body which are highly organized and complicated apparently are easily disordered.

Lack of information concerning the peritoneum, one of the most remarkable structures of the body, is to be deplored, as it plays an important role in pelvic disease. The peritoneum is a tremendous factor in body defense. Its area is as great as that of the entire body. Its endothelial lining in the course of an infection helps in developing, in the abdominal fluid, bacteriolysins, agglutinins and precipitins. These are helped by the phagocytes and leukocytes. The greater omentum, by its blood and lymph vessels, is enabled to drain secretions within the abdomen. The peritoneum will stand much infection; however, if it is traumatized the power of resistance is lowered.

Preoperative adhesions, the result of infections, are encountered frequently in pelvic surgery and for this reason postoperative adhesions are prone to form and the possibility of ileus and intestinal obstruction is great, especially if much trauma has been inflicted. It is indeed unfortunate if these serious conditions are not recognized early.

It is likely that the very prevalent thought that disease of the female generative organs produce neuroses and insanity is much of a fallacy. Pelvic disease usually does not produce a neurosis; however, it may adversely influence general health. This in turn may be productive of a neurosis. Insanity almost always is not produced by disease of the generative organs; however, it often is complicated by disorders of sexual organs, especially in neuropathic females.

It is a matter of record in some asylums that the removal of pathologic pelvic tissue, especially the residual effects of pyogenic infections, and the eradication of sources of focal infection in the cervix, have been followed by marked improvement in mental derangements, with best results in melancholia and paranoia. Erratic sexual behavior is well worth considering, as a proper understanding of the many phases of this subject will enable the profession to help the physical welfare and the moral education of girls.

Laboratory tests are invaluable; however, there is a tendency to rely too much upon them and to forget that inaccuracies may occur in technics, interpretation and application of such tests.

Just a word concerning the nomenclature of medicine: it is much too complex and causes confusion and misunderstanding. This is especially true of names applied to the newer biologicals of different laboratories. The Council on Pharmacy and Chemistry of the American Medical Association offers a clearing house for names of new medicaments accepted as potent. Adherence to these names, which are carefully chosen by pioneer workers in each field, will save the clinician infinite confusion.

I have attempted to call attention to some of the endeavors which are developing a different but better gynecology. It is not best to accept new theories without giving them critical study.

Osler called Sydenham "A man of many doubts and therein lay the secret of his great strength." There are still before us many problems carrying innumerable chances of error. If you doubt this, allow me to propound two questions which should be of interest to those studying the organs of reproduction. Can you explain "the mystery of life?" What causes the onset of labor? I am sure you will agree that we have a fine field in which to work, so let us take pride and pleasure in developing and sustaining it.

"Behold I have set before thee an open door and no man can shut it."—Rev. 3:8.

SEASONAL OCCURRENCE OF VARIOUS OBSTETRICAL COMPLICATIONS AND ABNORMALITIES*

By RICHARD PADDOCK, M.D.,
St. Louis, Missouri

In dealing with disease, we all as practitioners of medicine will agree that weather conditions and climate have a great deal to do with production and occurrence of various medical conditions. One need only review morbidity reports of reportable diseases year by year to note the prevalence of certain diseases in various seasons of the year. It would seem that weather conditions exert some influence on the production of disease. Time now will not permit a general discussion of this topic.

In dealing with obstetric cases year after year, I am more and more impressed with the fact that certain obstetrical abnormalities are seen more

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*From the Department of Obstetrics and Gynecology, Washington University School of Medicine, and the Barnes Hospital and St. Louis Maternity Hospital.

frequently during certain seasons of the year. It would also seem that the proportion of these abnormal cases varies from year to year with the weather conditions of the seasons in which they occur. This can be shown by following some of these abnormalities from year to year and comparing the variations in incidence with weather conditions.

In following the incidence of obstetrical abnormalities, it has always seemed to me that cases of post-maturity or prolonged gestation occur most frequently in the late months of the calendar year. It would seem from observation that most menstrual disturbances occur in the late winter months and that most cases of spontaneous abortion were handled in the late winter or early spring; following conception in the cold months of the year.

To be of any value, such observations must be substantiated by recorded fact. It is therefore necessary to turn to written records to obtain accurate data. Reliable sources of information are hospital records, accepted texts and literature on various subjects by authoritative writers.

One obstetrical condition or abnormality in which seasonal variation is seen is eclampsia and related conditions. It is common experience that pregnancy with hypertension, preeclampsia and eclampsia is most common in the early months of the year. Hinselman in his text on eclampsia devotes considerable space to the seasonal variation in the frequency of this complication. He also shows this variation as reported from different clinics throughout the world. Here is a chart shown by Williams in his text on obstetrics to show this seasonal incidence of eclampsia as collected by Harrar:

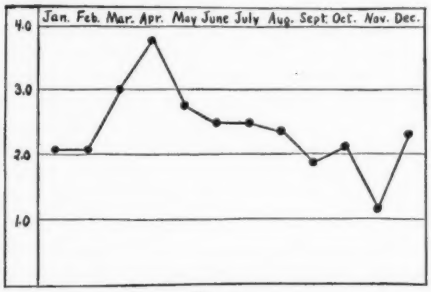

Chart 1

Incidence of eclampsia cases per one hundred admissions as collected by Harrar—after Williams (Appleton).

Previously I mentioned the observed tendency to post-maturity or prolonged gestation in the late months of the year. In order to substantiate that observation, hospital records were examined. Incidentally it was found that post-mature delivery is a very infrequent diagnosis in hospital records. Although we speak about post-maturity, and a considerable number of essays have been written on the subject, the condition is not usually included in the front sheet diagnosis. Therefore, it is also advisable to look to the literature for case records pertaining to post-maturity. In the literature of the past few years, there were found ten cases where the dates of delivery could be obtained. These cases occurred over a period of sixteen years. Briefly, all of these cases but two were delivered during the months from July to December.

Hospital records of thirty cases of post-mature delivery were obtained. These cases occurred over a five-year period. None of the deliveries diagnosed post-mature occurred earlier in the year than July 26. The majority were delivered in September, October and November.

To avoid repetition, I summarize the observations in the following table:

Table 1

POST-MATURE DELIVERY CASES

	Cases from Literature	Hospital Cases	Misc. Cases	Total
January	0	0	0	0
February	1	0	0	1
March	0	0	0	0
April	1	0	0	1
May	0	0	0	0
June	0	0	0	0
July	1	1	0	2
August	2	2	0	4
September	2	8	0	10
October	0	7	1	8
November	1	8	1	10
December	2	4	0	6
Total	10	30	2	42

Monthly distribution of post-mature delivery cases.

Two cases from other sources were collected. These deliveries were in October and November, respectively.

To summarize, the observations are as follows: out of forty-two collected cases of post-mature delivery, only two were delivered in the first six months of the calendar year. The majority of the cases were delivered in September, October and November.

It appears evident that the tendency to prolonged gestation is most pronounced in the fall months. Although a number of theories may be advanced to explain this tendency, I shall not dwell on them here.

ABORTION

In the practice of obstetrics, it has always seemed to the writer that abortions occur most frequently in the late winter and early spring. (Here abortion is spoken of as interruption of pregnancy up to sixteen weeks gestation.) In order to present such conclusions, it is necessary to study a large number of abortive cases over a considerable period of time. Consulting hospital records of abortion cases, one sees that on first inspection the number admitted for treatment is quite variable over any given period. One must also take into consideration that the period of gestation may vary from a short time following the last menstrual period to sixteen weeks. This also makes tabulation quite inconsistent when only the number of admissions is considered.

A large proportion of the abortion cases give a definite history of attempted interruption and cannot be considered as being due to natural causes. Such cases must not be included in this work. Cases with a history of attempted interruption are not included.

In the observations made, two constant factors can be used: the date of the last menstruation, and the number of cases that were delivered when the abortion cases would have been due for delivery. Using these two constant factors, one may obtain more accurate observations as to the seasonal occurrence of abortions.

The material used includes two hundred and sixty-three cases of abortion over a period of five and a half years as obtained from the records of the St. Louis Maternity Hospital. In order to chart the variation in abortion cases, the number of abortions per one hundred deliveries is estimated month by month, using the number of deliveries for each month that the abortion cases would have been due to deliver, had they gone to term. For example: if there were six patients who aborted between February and April, all of whom menstruated last in January, then these cases would be considered in terms of the number of deliveries in the next October, when they would normally have been due. Thus one may see the relation, if any, between season and incidence of abortion. The charts are plotted in terms of abortions per one hundred deliveries.

In preparing the charts, one notices considerable variation from year to year in certain months. Thus far no satisfactory explanation has been found by the writer. Economic conditions may cause considerable variation in the number of cases seeking hospitalization for the treatment of abortion. In inspecting the charts made of the abortion cases year by year, there are noted rather consistent trends in the incidence curves. The highest incidence per hundred deliveries, at the time the abortion cases would have been due, come from conceptions during the coldest months of the year: December, January and February. Then as the warmer months come on, the incidence curve falls. This drop is usually at its lowest over the months of conception, July and August, and then rises in the spaces over the conception months (October, November and December). As was pointed out, there is considerable variation in certain months from year to year, but the general trend is the same. This is especially true of the peak of the curve of incidence over the months of conception December, January and February. I am inclined to believe that periods of unseasonable weather in some instances are responsible for some of the most marked deviation occurring in single years. It is possible to correlate some of these deviations with periods of extreme weather conditions in some of the examples studied. With the aid of a meteorologist, more significant facts could probably be shown.

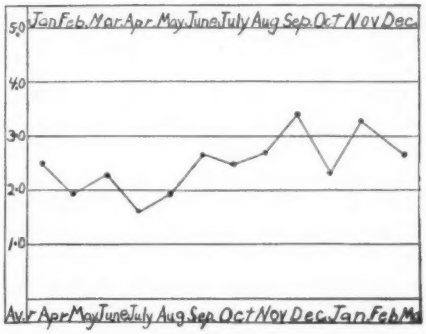

Chart 2

Average incidence of abortions over five-year period plotted in terms of number of abortions per one hundred cases. Top line of months is date cases were due. Bottom line of months are last menstrual times.

TWIN PREGNANCY

In the occurrence of pregnancy with twins, we have more of a phenomenon than a true abnormality. Since there are uni-ovular twins and multi-ovular twins, it may be interesting to compare the two in respect to the time of year or the season in which the conception of each type

begins. The source of data for this observation is two-fold. We have hospital records of twin pregnancies in which the data is accurate beyond need of question, and laboratory records of twin placentas. The laboratory records do include a number of the acceptable cases from the hospital records and also a number of cases from outside sources brought into the laboratory for the purpose of study.

Since double ovum twin pregnancies are much more frequent than single ovum twin pregnancies, they will be considered first. Only cases from the records have been considered where there is a reasonably accurate menstrual history.

A table is presented here which tabulates the dates of the last menstrual periods for the hospital cases and for the laboratory cases:

Table 2

SHOWING MONTHS OF LAST MENSTRUATION OF DOUBLE OVUM TWIN PREGNANCY CASES

Month	Hospital Cases	Laboratory Cases	Total
January	4	2	6
February	4	4	8
March	7	6	13
April	5	5	10
May	10	5	15
June	4	3	7
July	5	4	9
August	4	2	6
September	6	7	13
October	2	1	3
November	4	3	7
December	8	6	14
Totals	63	49	112

Note wide distribution of incidence of month of last menstruation.

One can readily see from the table that there is very little deviation in the incidence of the months of the last menstruation in the double ovum twin pregnancy cases. In this series the low and high incidence months came in spring, winter and fall. There is perhaps no more deviation here than would be found in two series of 63 and 49 cases of normal pregnancy selected at random from the files. The only marked deviation is in the month of October where there was the lowest incidence in each series. I am at loss to explain this.

Over the same period of time as of the double ovum twin pregnancies, single ovum twin pregnancies were selected. Only authentic cases were used, as proven by a study of membranes and placenta. Of these only those with definite dates of last menstrual period were used. The table with results is here included.

Table 3

SHOWING MONTHS OF LAST MENSTRUATION OF SINGLE OVUM TWIN PREGNANCY CASES

Month	Hospital Cases	Laboratory Cases	Total
January	0	0	0
February	3	2	5
March	2	2	4
April	0	1	1
May	2	1	3
June	0	1	1
July	0	0	0
August	0	0	0
September	1	0	1
October	2	2	4
November	1	1	2
December	2	3	5
Totals	13	13	26

Note low incidence through warm months of year.

Unfortunately the series include only a total of thirteen cases from the hospital records and thirteen from the laboratory records. In this small series, certain facts are evident. In the warm months of the year, the incidence of conception of single ovum twin pregnancy is the lowest. In the months in which the weather is cold and unseasonable or quite changeable, as in fall and early spring, the incidence is highest. In spite of the small series we may see the lowest incidence in any consecutive period of three or four months in June, July, August and September, while the highest incidence is in any other consecutive three or four months period, which includes the cold and changeable months in the year. This is also in accordance with the theory that single ovum twinning is brought about by retardation of development due to the inhibiting effect of cold, or chilling, causing a retardation of growth and subsequent duplication of growth in attempt to overcome retarding factors. It is also interesting to note that the low incidence here falls on approximately the same low incidence months as in the abortion charts, particularly with last period between July 1 and August 31.

PLACENTA PREVIA

Since placenta previa is a pathological condition that is associated with implantation of the ovum and development of the placenta, the production of this condition must be quite early in gestation. No one knows what factors bring

about this low-situated placenta. Perhaps it is only a matter of chance that placentation occurs so low in the uterus. In relation to the subject, it was considered interesting to look up the time of year of conception of the placenta previa cases.

Since 1927, forty-two cases of placenta previa were found in which the last menstrual date was definitely recorded. Here is set forth the number of these cases with the months during which the last menstrual period occurred:

Table 4

SHOWING MONTHS OF LAST MENSTRUATION OF PLACENTA PREVIA CASES

Month	No. Cases	Month	No. Cases
January	4	July	0
February	3	August	2
March	4	September	7
April	4	October	3
May	6	November	3
June	4	December	2
		Total	42

Note low incidence during July and August.

With forty-two cases over twelve months of the year an even division would be 3.5 cases for each month. Of course, this would not be expected to work out for a series this small, or any incidence nearly so average. We see a wide deviation in the time of the last menstruation. One period of the year, however, is significant. One sees that none of the placenta previa cases here had the last menstrual period in July, and in the month of August, only two.

One would not attach much significance to this period alone since it might appear to be only a coincidence. However, if one turns to the abortion cases we see that this time corresponds to the low incidence period for conceptions ending in abortion. It also falls in the time period when conceptions resulting in single ovum twin pregnancy did not occur.

These three conditions have their origin near the time conception takes place and may have common factors in their production. Again let it be pointed out that it is not the purpose of this paper to attempt to show that these abnormalities are caused by seasonal variation. It is only an attempt to show seasonal occurrence of these conditions.

CHORIONEPITHELIOMA AND HYDRATIDIFORM MOLE

Another much less frequent obstetrical complication, but exciting unusual interest, is hydatidiform mole and chorionepithelioma. In the average obstetrical service these pathological conditions are seen only now and then. Here have been included under the heading both the malignant and nonmalignant type of trophoblastic tumor. No cases of malignant type occurred on the service here. Looking backward for the past few years, it comes to the attention of the writer that most of the cases recalled to mind came in the late spring and early summer of the year. Since this abnormality of pregnancy may be discovered most frequently in the fourth and fifth month of gestation, it is well to look to the time of onset of pregnancy to get any comparative data. This condition must have its beginning near the time of conception to produce such marked changes in the placenta. In searching the records of the Barnes Hospital and the St. Louis Maternity Hospital since 1917, fifteen cases were collected. In each of these cases, the data on the last menstrual period was accurate enough to be acceptable in the series.

The months in which the last menstrual periods occurred are as follows:

January	3 cases
February	1 case
March	0 cases
April	2 cases
May	3 cases
June	0 cases
July	0 cases
August	1 case
September	0 cases
October	2 cases
November	1 case
December	2 cases
Total	15 cases

Here one may see that most of the pregnancies resulting in this unusual tumor of trophoblastic origin began in the cooler months of the year. This would account for the recognition of most of the cases in the late spring or early summer. In this small series, we see again the freedom of onset of the complications during the warm months of the year. The significance of this becomes more impressive as each kind of abnormality is observed.

In order to determine any marked variation in an equal number of cases under observation elsewhere, fifteen cases were selected by going back through the literature and taking cases reported where the menstrual dates were recorded. It is interesting to note that most of these cases were from cities north of St. Louis where the winter

temperatures are somewhat colder but the summers are not so hot nor so continuously hot and dry, with cooler weather coming on a little sooner at the end of the summer.

The results of the observations are essentially the same, with some slight differences from month to month, as would be expected. The striking fact common to each series is that the fewest cases had their origin in the months of July and August, while before and after these warm months the incidence was increased.

A number of other cases were picked up while the subject was under consideration and in eleven cases in this third series only one had last menstruation between July first and the last of September.

A chart is here included to show the months of last menstruation for all the cases of hydatid mole and chorionepithelioma included in this study.

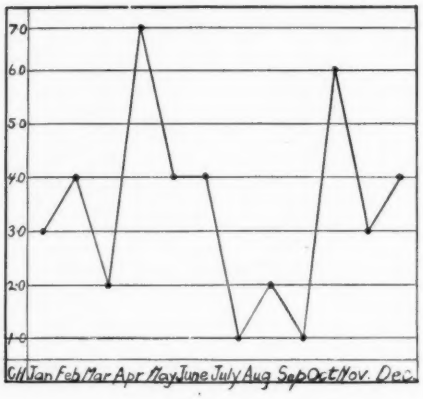

Chart 3
Showing distribution by months of the last menstrual period of all the chorionepithelioma cases.

CONGENITAL MALFORMATIONS

By the same effect as in the case of chorionepitheliomata, we could well expect to find evidence of seasonal variation in the development of the fetus. The most striking evidence of effect on fetal development would be in the occurrence of fetal anomalies or congenital malformations.

In the last year, Petersen has studied the distribution of congenital malformations in the United States. He has shown good evidence of a relation between climate and the occurrence of fetal anomalies.

In a more recent paper, Petersen has presented evidence of a seasonal trend in the conception of malformations. By taking the conception months of each of the various types of malformations studied, including monsters, spina bifida, cleft palate, and several others, he has shown the high occurrence of conceptions of malformations in months of March and April and a very small number conceived during the months of July, August and September.

His curve of incidence of these malformations follows the same trend as the curve of the index of barometeric variability in Chicago.

One may see that here again the low incidence months are the same as those of conceptions resulting in abortions, single ovum twins, placenta previa and chorionepithelioma.

In this presentation, no attempt has been made to offer any explanation for the occurence or variation of the conditions considered. Climate undoubtedly plays no small part in the functional life of the people. The variations in the weather from season to season produce functional changes in the body. As well as the direct effect on the organism, there are the secondary effects due to climatic conditions. The direct effects may produce favorable or unfavorable changes in metabolism, body temperature, the endocrine system, cellular growth, and organ activity. Secondary effects producing similar changes may come as the result of seasonal effect on the things people are dependent on, such as foodstuffs and their vitamin content, the amount of foods eaten, and standards of living maintained at various times of the year.

Numerous experiments have been carried out and numerous observations have been made to show the effect of climate on health and body function. Beyond a doubt the body is quite responsive to climatic change. Many accurate observers are laying the foundations for studies leading to new knowledge on climate and weather conditions as pertaining to the lives and health of the people. Obstetrical conditions that may be influenced by seasonal variation constitute but a segment of the large topic of climate and health. Observations on human fertility in relation to temperature have already been published. Perhaps it can be shown that the products of conception and the course of pregnancy are definitely influenced by climatic conditions in different seasons.

A CLINICAL STUDY OF VITAMIN C EXCRETION*

By MARVIN CORLETTE, M.D.,
JOHN B. YOUMANS, M.D.,
JOSEPH AKEROYD, B.A.,
and
HELEN FRANK, B.A.,
Nashville, Tennessee

Vitamin metabolism and vitamin deficiencies should be of particular interest to gastro-enterologists. Diseases of the gastro-intestinal tract may affect the absorption or intake of vitamin C containing foods due to structural or functional changes. The treatment of various gastro-intestinal diseases frequently involves the use of restricted diets in which there is the danger of vitamin insufficiency. Deficiencies in the intake of some of the vitamins themselves may cause functional and anatomical changes in the gastro-intestinal tract and lead to symptoms as well as interfere further with the intake and absorption of these necessary food factors. In cases of manifest scurvy, for example, hemorrhages may occur throughout the gastro-intestinal tract and it is possible that similar changes of a milder degree may occur in latent scurvy. Finally, in no other field of medicine is the faddist patient so likely to adopt inadequate or ill balanced diets as in those whose complaints center about the digestive system.

In addition to studies of the other vitamins, notably A and B, the relation of vitamin C deficiency to gastro-intestinal disease has been the subject of considerable inquiry both clinically and in the laboratory. Several years ago McCarrison,[1] noting the striking rarity of common gastro-intestinal diseases among Indians in the region of the Himalaya mountains, who subsisted largely on "natural foods," subjected a series of monkeys to rigidly controlled dietary studies and concluded that vitamins B and C serve to protect the gastro-intestinal tract from infections. In 1928, Seale Harris[2] emphasized the role of vitamin C in the etiology and cure of peptic ulcers. He pointed out the high incidence of such lesions in "sugar-saturated, vitamin-starved Americans" and was of the opinion that "the antiscorbutic vitamin C seems to protect not only against the disease known as scurvy, but against infections of the entire gastro-intestinal tract." He advised the use of orange juice (strained) as a part of all ulcer diets. The value of including vitamin C containing foods in the treatment of intestinal tuberculosis has been emphasized by McConkey.[3] In 1933 Smith and McConkey[4] reported some very convincing work relative to the occurrence of peptic ulcers in guinea pigs fed on a diet deficient in vitamin C. In carefully planned and controlled experiments they found:

> "Of seventy-five guinea pigs fed on diets deficient in vitamin C, twenty, or approximately 26 per cent, developed peptic ulcers which were similar in location and in gross and microscopic appearances to those observed in man."

They concluded that peptic ulcer in the guinea pig is apparently caused by a partial but prolonged deficiency of vitamin C.

The recent development of methods for measuring the amount of vitamin C in body tissues and fluids, and in naturally occurring foodstuffs by Birch, Harris, and Ray[5] and others, has made it possible to study such phases of vitamin C metabolism as its excretion, the amount stored in the body, *et cetera*. Within the past year we have studied the urinary excretion of vitamin C and the degree of saturation with the vitamin in a group of patients and persons suspected of taking a diet inadequate in, among other things, vitamin C. It was our original purpose to use a group of supposedly normal subjects as controls, but some of these were found to have daily excretions as low as 12 mg. and thus their value as controls was impaired. They did, however, offer important evidence of rather low levels of vitamin C excretion in persons on supposedly adequate diets. In addition to determining the actual excretion of vitamin C of these various subjects our study has given some idea of normal standards of excretion, the normal store in the body, *et cetera*. Recently, some of these studies have been repeated, using many of the same subjects, both as a control of our previous observations and to compare the findings at different seasons of the year. Finally, in view of the recent lay emphasis on the need for vitamin C (fruit juice) as exemplified by the sale of bottled orange juice and other fruit drinks, we have determined the vitamin C content of some of the commercial drinks offered to the public.

In the original study there were 31 subjects, 15 of whom were patients of the clinic, 9 members of the non-resident hospital staff, and 7 members of the resident staff. All of the patients studied were ambulatory. In general, their

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*From the Department of Medicine, Vanderbilt University School of Medicine.

diets were known to be low in protein, fresh fruits, and milk; and though high in fresh vegetables, their habitual methods of cooking these in large quantities of fat for long periods of time very probably reduced their vitamin C content. No definite signs of scurvy were present in these subjects, but evidence of mild vitamin C deficiency is sometimes observed in this class of patients. On the whole, we believe these subjects to be fairly representative of the native population of the region.

The non-resident hospital staff group was composed of doctors, technicians, and clerical workers, whose diets were in no way uniform. Some were known to take fairly large amounts of vitamin C containing foods, while others took smaller amounts of these foods, due to dietary preferences and dislikes. Our third group, the resident staff, all ate in the hospital dining rooms and were offered the same food. Their diets were presumably well balanced and differed individually only as their personal tastes differed.

In the past month, or about six months following our original study, we again determined the daily urinary excretions of several of our former subjects, in both the resident and non-resident staff groups.

METHODS

The vitamin C content of the urine was determined by titrating with Tillman's reduction indicator, 2-6 dichlorophenolindophenol, using a micro-burette. The indicator was re-standardized against Merck's "Cebione," a crystalline vitamin C preparation, about every three days. Titrations were always carried out quickly. The volume of the aliquot of urine tested was varied inversely according to the amount of ascorbic acid it was expected to contain. When possible the specimens were titrated as soon as voided, but when this was impractical about 10 per cent of 2 normal sulphuric acid was used as a preservative. In all cases, two or more twenty-four-hour determinations were carried out, and the figures given represent an average of these determinations. In collecting the twenty-four-hour specimens from the patient group, trips were made to their homes in the morning, and again in the late afternoon, at which times the previously voided specimens were collected and bottles containing an appropriate amount of sulphuric acid were left. Each subject was given a list of instructions and the importance of obtaining all of his urine was stressed. The cooperation of the subjects was excellent and we feel certain that all of their urine was obtained during the test periods. The staff members left their specimens at the laboratory during the day and carried bottles home for the night specimens.

The degree of saturation was tested by giving large amounts of ascorbic acid in the form of fresh orange juice in divided doses over a twelve-hour period, and determining the concurrent twenty-four-hour excretion. Subjects whose tissues were fairly well saturated were expected to excrete the greater part of the dose given. Those whose tissues contained little of the vitamin were expected to retain the greater part of the test dose. In most instances the dose of ascorbic acid was over 400 mg. In these tests we have arbitrarily considered an excretion of 80 per cent of the test dose to indicate complete saturation with vitamin C. It should be emphasized, however, that complete saturation is probably not the normal state and that the normal store of vitamin C is probably considerably less than complete saturation. Our original experiments were carried out during the winter and early spring months and were repeated in part in the fall of this year.

The commercial orange juice products which were tested for their vitamin C content included canned orange juice, orange drinks sold at fountains, and bottled orange drinks distributed by local dairies. In each case, these products were purchased in the usual consumer manner and then taken directly to the laboratory for immediate examination by the same method as used with urine.

EXPERIMENTAL RESULTS

The results of the study of the twenty-four-hour excretion are shown in Table 1. Among the patients, the daily urinary excretion of vitamin C ranged from 7.5 to 34 mg. Twelve of the 15 subjects in this group excreted less than 20 mg. daily, an amount which we have arbitrarily taken as the lower level of normal twenty-four hour excretion.

In the resident staff group the excretion ranged from 12 to 24.5 mg. daily, and five out of seven were below the 20 mg. level. The two subjects in this group who had outputs above 20 mg. were dietitians, who probably paid more attention to the selection of a well balanced diet than did other members of the group.

In the non-resident staff group the excretion ranged from 10.5 to 80 mg. and only three members of this group fell below the 20 mg. level of excretion. The two subjects who had the highest excretions in this group were found

Table 1

THE DAILY (TWENTY-FOUR) URINARY EXCRETION OF VITAMIN C (ASCORBIC ACID)*

Patient Group Subjects	Vitamin C	Resident Staff Subjects	Vitamin C	Non-Resident Staff Subjects	Vitamin C
	mg.		mg.		mg.
F. G.	7.5	C. T.	12.2	H. F.	10.7
F. W.	9.0	R. B.	12.3	E. W.	14.9
H. K.	10.0	W. F.	12.9	J. A.	15.5
R. J.	12.0	R. T.	15.1	J. Y.	20.1
V. C.	13.0	A. W.	16.0	F. B.	22.3
L. F.	14.2	M. M.	23.3	A. B.	30.8
C. S.	15.0	M. G.	24.5	M. C.	43.0
W. J.	16.0			F. R.	64.2
C. J.	16.0			M. D.	80.1
K. S.	17.5				
E. M.	18.5				
A. R.	19.0				
A. J.	22.0				
J. N.	23.0				
H. S.	34.0				

*In each group the values are arranged in ascending order.

to consume very liberal amounts of vitamin C containing foods, while the intake of such foods was definitely less in the subjects with the smaller excretions.

Results of the tests of saturation are given in Table 2. In the patient group excretion of the test dose ranged from 2.3 to 34 per cent, or, in other words, 65.1 to 97.7 per cent of the test dose was apparently retained. None excreted as much as 80 per cent and 13 of the 15 subjects in the group excreted less than 15 per cent. Thus, in no instance were the subjects found to be saturated according to the standards adopted in this study, and most of them excreted only a very small part of the test dose.

Table 2

RETENTION AND EXCRETION OF TEST DOSE OF VITAMIN C (ASCORBIC ACID)

Subject	Test Dose	Excretion		Apparent Retent'n	
	mg.	mg.	Per Ct.	mg.	Per Ct.
Patient Group					
F. W.	600	13.7	2.3	586.3	97.7
R. J.	493	15.8	3.2	477.2	96.8
H. K.	493	18.4	3.7	454.6	96.3
E. M.	784	32.5	4.1	751.5	95.9
J. N.	425	17.6	4.1	407.4	95.9
H. S.	637	31.3	4.9	605.7	95.1
C. S.	414	20.4	4.9	393.6	95.1
W. J.	417	22.9	5.5	394.1	95.5
L. F.	395	31.1	7.9	363.9	92.1
F. G.	636	56.4	8.9	579.6	91.1
C. J.	634	73.8	11.6	560.2	88.4
V. C.	654	88.2	13.5	565.8	86.5
A. R.	493	124.0	26.0	369.0	74.0
A. J.	493	172.0	34.9	321.0	65.1
Resident Staff					
A. W.	633	11.4	1.8	621.6	98.2
R. T.	594	20.5	3.5	573.5	96.5
C. T.	706	28.7	4.1	677.3	95.1
R. B.	706	38.2	5.4	667.8	94.6
W. F.	706	44.0	6.2	662.0	93.8
M. G.	654	223.0	32.3	468.0	67.7
M. M.	646	239.0	37.0	407.0	63.0
Non-Resident Staff					
J. Y.	288.7	22.1	7.7	266.6	92.3
J. A.	420.0	64.1	15.3	355.9	84.7
H. F.	968.0	167.2	17.3	800.8	82.7
E. W.	586.0	207.0	35.3	379.0	64.7
M. D.	312.0	193.7	62.7	118.3	37.3
M. C.	352.0	240.0	68.2	112.0	31.8
F. R.	573.0	557.0	97.2	16.0	2.8

Among the resident staff, the excretion of the test dose ranged from 1.8 to 37 per cent. None of these subjects was saturated and the two dietitians were the only ones who showed any considerable excretion.

In the non-resident staff group the excretion following the test dose ranged from 7.7 to 97.2 per cent. One subject excreted more than 80 per cent and was therefore considered to be saturated. Three excreted very small fractions of the amount given.

Table 3 shows a comparison of the daily excretions in the fall of 1935 with the excretions of the same subjects in the spring of 1935. The subjects were members of the resident and non-resident staff groups. We were unable to make similar studies on the patient group at this time.

Table 3

URINARY EXCRETION OF VITAMIN C IN SPRING OF 1935 AS COMPARED WITH EXCRETIONS IN FALL OF 1935

Subject	Spring, 1935	Fall, 1935
	mg.	mg.
F. R.	64.2	33.04
M. C.	43.0	28.30
M. G.	24.5	25.56
M. M.	23.3	32.35
J. Y.	20.01	30.26
E. W.	14.9	23.03
R. W.	13.7	31.71
W. F.	12.9	41.69
H. F.	10.07	17.03

It will be seen that in 6 of the 9 subjects the fall excretion exceeded that of the spring by several milligrams. Both of the subjects whose fall excretions were less than those in the spring had in the interim undergone rather radical changes in their mode of living. It is to be noted that despite the observed fluctuations, the range of daily excretion in these presumably normal subjects lies between the limits of 17 and 42 mg.

Four of the normal subjects were studied for a much longer time, three of them for about 40 days. During this time they were on a vitamin C free diet and were given different amounts of vitamin C at varying intervals. Only a short

summary of some of the results can be given here.

It was found that if, after complete saturation, the subject took a vitamin C free diet his daily excretion rapidly fell to a low level, as was found by Johnson and Zilva.[6] Within a few days the excretion often fell to a level comparable to that found in subjects suspected of an inadequate intake of the vitamin (20 mg. or less). The findings in one such case which is illustrative of all are shown in Table 4.

Table 4

EXCRETION OF VITAMIN C AFTER SATURATION WITH SUBJECT ON VITAMIN C "FREE" DIET

Subject	Days	Test Dose	Excretion	Excretion
		mg.	mg.	Per Ct.
J. Y.	1		38.9	
	2	600	378.7	63.1
	3	600	382.8	64.8
	4	600	429.8	71.6
	5	600	596.2	99.4
	6		131.0	
	7		46.4	
	8		39.2	
	9		45.4	
	10		36.8	
	11		39.7	
	12		40.7	
	13		28.7	
	14		19.5	

If, however, the subject, after complete saturation, took amounts of the vitamin comparable to those which might be taken in a good diet it was found that his daily excretion remained considerably above 20 mg. This suggests that under the conditions of a good store and a good intake the daily excretion of vitamin C is higher than was found in many of our subjects. An example is shown in Table 5.

Table 5

EXCRETION OF VITAMIN C AFTER SATURATION WITH SUBJECTS GIVEN DAILY AN AMOUNT OF VITAMIN C COMPARABLE TO THAT TAKEN IN A GOOD DIET

Subject	Days	Vitamin C Intake	Excretion	
		mg.	mg.	Per Ct.
M. C.	1	1000	389.8	39.0
	2	1000	539.1	53.9
	3	930	841.1	90.2
	4	1000	1059.0	106.0
	5		222.0	
	6	75	72.0	96.4
	7	75	85.2	113.5
	8	75	86.9	115.8
	9	50		
	10	75	82.0	109.4

Resaturation tests at varying intervals showed that saturation is very quickly lost on a vitamin C free diet. In as short a time as two days a resaturation test may show as much as a 25 per cent retention (Table 6).

Table 6

RESATURATION TESTS WITH VITAMIN C AT VARYING INTERVALS WITH SUBJECT ON A VITAMIN C "FREE" DIET

Subject	Days	Test Dose	Excretion		Retained
		mg.	mg.	Per Ct.	Per Ct.
M. D.	1	600	311.4	51.9	49.1
	2	600	509.3	84.8	15.2
	3		143.5		
	4		53.2		
	5		30.3		
	6	600	293.1	48.8	51.2
	7	600	392.2	65.4	34.6
	8	600	539.0	89.9	10.1
	9		254.1		
	10		59.3		
	11	600	444.3	75.2	24.8

The results of the study of the content of vitamin C in various commercial orange drinks are given in Table 7. Four canned juice products were studied. Three of these revealed a vitamin C content about equal to that of juice freshly expressed from oranges, namely, around 50 mg. per 100 c. c. of juice. The fourth showed only about one-third this amount. The two fountain drinks studied were both about one-fifth as potent in vitamin C as fresh orange juice. The bottled orange drinks were surprisingly low in their content of the vitamin. Each contained little more than we found in the urine of many of our subjects. It would require about a liter and a half of such preparations daily to furnish as much as 50 mg. of vitamin C.

Table 7

VITAMIN C CONTENT OF VARIOUS COMMERCIAL ORANGE JUICE PREPARATIONS

(I) Canned Orange Juice	
Product	Content in milligrams per 100 c. c. of product
(1) S. A.	49.39
(2) L.	53.28
(3) T. S.	41.60
(4) D. P.	18.87
(II) Fountain Orange Drinks	
Product	Content in milligrams per 100 c. c. of product
(1) O. J.	8.32
(2) C. F.	9.71
(III) Bottled Orange Drinks	
Product	Content in milligrams per 100 c. c. of product
(1) T. P.	3.88
(2) B.	3.60

DISCUSSION

Uncertainty as to the amounts of vitamin C required under optimum conditions of health

and lack of knowledge of the manifestations of slight degrees of vitamin C insufficiency make it impossible to define the normal excretion of vitamin C at present. However, a comparison of the excretion with the probable character of the diet in our studies, as well as those of others, suggests that at least 20 mg. per day should be excreted under normal conditions in adults and we have tentatively adopted that amount as the lower limit of normal excretion. This conclusion is supported by the finding that the daily excretion following saturation with the subject maintained on an amount of vitamin which might be taken in a good diet was above this value. By this standard it is seen that the greater number of the patients studied and several of the control group excreted less than the normal amount. Whether this means that those individuals were subject to a mild vitamin C deficiency cannot be definitely stated at present.

Tests of saturation were found to agree well with the tests of daily excretion. Complete or nearly complete saturation with vitamin C is probably not a normal state, since to cause complete saturation requires the administration of very large amounts, and saturation is quickly lost when the intake of vitamin is stopped or continued in the usual dietary quantities. However, the degree of saturation of those subjects whose diets appeared to contain a reasonably liberal amount of the vitamin was distinctly greater than those subjects whose diets were believed to be relatively poor in vitamin C. Such a comparison between the diet and the degree of saturation as found in our study has led us to adopt as a lower limit of normal saturation an excretion of at least 30 per cent of a good sized test dose. On this basis most of the patient group and several of the supposedly normal control subjects apparently had a less than normal store of vitamin C in the body.

The re-examination of several of the subjects showed in most instances a greater daily excretion than had been found at the first examination. In part, this may have been due to the attention directed to their apparent deficiency in the intake of vitamin C. Since, however, the second examination was done in the early fall after a period when supplies of fresh fruit and vegetables were more abundant and the first examination was made in the latter part of the winter, the higher excretion at the second examination may be related to a greater store of vitamin laid up during the summer.

Analyses of the vitamin C content of the commercial drinks indicate that some are so low as to be almost worthless as far as their vitamin C content is concerned.

SUMMARY AND CONCLUSION

(1) Twelve of a group of 15 subjects whose diets were suspected of being inadequate in vitamin C excreted less than 20 mg. of the vitamin daily, an amount which we have tentatively taken as the lower limit of normal daily excretion. Eight of 16 subjects on presumably adequate diets were similarly found to excrete less than 20 mg. a day.

(2) Twenty-one of a group of 28 subjects excreted less than 30 per cent of a large test dose of vitamin C in the twenty-four hours during which it was administered. This indicates an apparent retention of a large amount of the vitamin and suggests a small store in the body of these subjects.

(3) Six of 9 subjects restudied were found to have higher daily excretions in the fall than in the spring of 1935. This probably reflects a more abundant intake of the vitamin during the summer months.

(4) The urinary excretion of vitamin C quickly falls to a low level after saturation when the subject remains on a vitamin C "free" diet, but when such a subject takes an amount of the vitamin comparable to that taken in a good diet his excretion remains considerably above the low levels found in many of our subjects.

(5) Resaturation tests at varying intervals show that saturation is quickly lost.

(6) Commercial orange juice preparations were studied for their vitamin C content. Several were found to contain relatively small amounts of the vitamin while others contained about as much as freshly expressed orange juice.

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DISCUSSION (*Abstract*)

Dr. W. W. Rucks, Jr., Oklahoma City, Okla.—The identification and isolation of crystalline vitamin C un-

doubtedly marks a major advance in the amazingly rapid accumulation of facts concerning the vitamins. It allows us to study a hitherto more or less intangible factor in terms of chemical exactness.

There is great variation in the daily excretion of cevitamic acid in apparently normal people, this variation depending to a large extent on the individual's dietary habits. Before the determination of the urinary excretion of vitamin C can be applied clinically, one must know what is the optimal protective amount. Inasmuch as individuals vary somewhat in their excretion of cevitamic acid from day to day, the determination of their saturation, as the authors suggested, may be a more accurate method of determining vitamin C deficiency.

For some time most clinicians have felt that there must exist certain subclinical deficiency states, but this has often been difficult to substantiate. Occasionally indirect information is available, such as Castle's observation of the reticulocyte response following the administration of orange juice to patients with subclinical scurvy.

Obviously these experiments are as yet inconclusive but they are opening a road toward a method of determining deficiency states before the classical signs of the disease appear.

THE CONSERVATIVE USE OF ANESTHETICS*

AGENTS AND METHODS

By JOHN S. LUNDY, M.D.,
Rochester, Minnesota

The use of anesthetic agents in general practice facilitates in many instances the accomplishment of operative and other therapeutic procedures that may be indicated. Occasionally, however, it defeats its purpose by introducing some complicating difficulty that was not anticipated. The selection of an anesthetic which in the average case might avoid this situation is so important that it seems to me worth while to discuss various anesthetic agents and methods, some of which are in my opinion more commendable in general practice than others. I will bear in mind throughout this paper that when a patient is to be operated upon in the home, the problem of anesthesia differs considerably from that of institutional practice.

LOCAL, REGIONAL AND SPINAL ANESTHESIA

Agents and methods for local and regional anesthesia are obviously useful in general practice because the technical steps in applying them are carried out preliminary to and independently of the operative procedures, although infiltration with a local anesthetic may be done intermittently throughout the operation. There is therefore less need for skilled assistance and cumbersome equipment than when general anesthesia is to be used. The technic of blocking nerves is not difficult and can be carried out with comparative safety by a relatively inexperienced person, which is not true of spinal anesthesia. Since the opportunities for informing oneself of the technic of nerve blocking are more readily available now than previously, these methods deserve more attention than they ordinarily receive. If the tissue to be injected is not diseased, then block anesthesia of the tissue or of the distal part of the extremity, or of the sacral nerves, is a good example of a method of anesthesia that compares more than favorably with any other.

With the increasing use of morphine and the barbiturates for preliminary medication, even those who previously were not willing to be operated upon under regional anesthesia are now content to have it used. The barbiturates are of benefit to the patient before general or local anesthesia, the induction of general anesthesia being smoother, and there being less excitement. Maintenance of anesthesia is accomplished with less ether admixed to gases when preliminary medication is given than when it is omitted. In those cases in which ether is not to be used but some form of gas anesthesia is to be used, preliminary medication is almost essential to the production of satisfactory anesthesia. Many patients who have received preliminary medication, the effects of which are not apparent after they come to the operating room, nevertheless are sufficiently affected so that their memory of the event or events that occur in the operating room after their arrival are not remembered either distinctly or at all. In obstetrical cases, preliminary medication has proven itself to be of decided benefit, but in such cases the dose of the drug must be large enough so that its effect is apparent. In the average case the onset of postoperative shock is delayed when a barbiturate has been used as a preliminary medicament. On the other hand, if drop ether is to be used as the anesthetic, then preliminary medication should consist of atropine, with little or no morphine and not much barbiturate. Depression and paralysis of respiration are occasionally observed when preliminary medication and ether are given before relaxation can be produced; then a situation exists which is very difficult to control.

Spinal anesthesia is a useful method, when indicated and if a conservative dose is employed

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and anesthetic agents that are relatively safe are used. The principal contraindication to the use of spinal anesthesia is marked debility, whether produced by several factors or by one. The dose for the average adult is about 1 mg. per pound of body weight, not exceeding 200 mg. in any case, and administering in the average case either 120 or 150 mg.

The site of injection is usually one of the lumbar interspaces, using the space between the first and second lumbar vertebrae for operations in the upper part of the abdomen, the space between the second and third for operations in the midportion of the abdomen, and the space between the third and fourth vertebrae for those operations in the thigh, perineum, groin, or bladder. The solution should be slowly ejected from the syringe into the spinal fluid, maintaining a constant rate of injection in all cases. I use a rate of 0.5 c. c. per second. Variations from this should be in the direction of slower injection because the solution in the syringe will occupy as many cubic centimeters of space subdurally as it occupies in the syringe, regardless of how slowly it is injected, since the fluid is not compressible. If it is injected too rapidly the procaine solution will in some cases travel as a stream through the spinal fluid to more distant points than it should, especially if there has been a scanty amount of spinal fluid and a resulting decrease in its pressure. The volume in the syringe in which the dose of procaine has been diluted bears directly on the duration of anesthesia and on the degree of relaxation that is to be expected following injection. One may obtain longer anesthesia with the concentrated dose than with a diluted dose; for example, if one injects 150 mg. from a syringe in which the procaine has been diluted to 5 c. c., one is injecting 5 c. c. of a 3 per cent solution. If one dilutes a 150 mg. dose to only 3 c. c. in the syringe, then one would be injecting 3 c. c. of a 5 per cent solution, and the anesthesia that results from injection of the 5 per cent solution lasts longer and produces more relaxation or paralysis than that produced by the 3 per cent solution. If one continues to increase the concentration of the solution injected until a 10 per cent solution has been obtained, then one has a solution which tends to injure the spinal cord by its very concentration. Accordingly there are these four main points in the administration of a spinal anesthetic: the dose, the rate of injection, the site of injection, and the volume in the syringe. I do not use barbotage.

Some of the untoward symptoms which are to be seen during spinal anesthesia probably come about through the systemic effect of procaine in the blood stream, because procaine is very quickly absorbed from the spinal fluid and, if it reaches a sufficient concentration in the blood stream, it is sure to produce certain systemic effects such as nausea, vomiting, and exaggeration of the fall in blood pressure; it may also perhaps produce other symptoms which we do not yet recognize as being due to this systemic effect. Procaine is absorbed from the spinal fluid, according to Nowak, fast enough so that the decomposition products appear in urine in twelve minutes. It is rather commonly observed that nausea following the injection of procaine in the spinal fluid appears on the average in about twelve minutes, whereas the most marked point of the fall in blood pressure will appear on the average of about twenty-two minutes after the injection of procaine subdurally. These occurrences coincide with my theory that part of the untoward result in spinal anesthesia is due to the presence of procaine in toxic quantities in the circulating blood.

On the basis of such a theory I have decreased the concentration of the solution injected to 3 per cent. With less than a 3 per cent solution one does not obtain relaxation in most cases. In order to interfere, too, with the absorption of procaine from the spinal fluid, I have purposely tried to lower blood pressure during spinal anesthesia to a point somewhere around 80 or 90 mm. of mercury systolic for the average adult. At the same time I have not wanted to have the blood pressure fall to the extreme degrees that are observed when ephedrine is not used and large doses of procaine are given; accordingly I have given doses of 25 rather than 50 mg. of ephedrine to the average patient. If more ephedrine is needed because of a subsequent fall in blood pressure to perhaps 50 mm. systolic, then I administer all or part of 25 mg. of ephedrine intravenously during the period when the blood pressure is low, trying to control it and raise it to about 85 mm. systolic in preference to having the blood pressure remain normal, or let us say, 120 mm. systolic. My hope then is that I will decrease the efficiency of the circulation of blood so as to decrease the absorption rate of procaine from the spinal fluid.

Procaine in the blood stream is destroyed by the liver, as shown by the work of Eggleston, Cary and Hatcher, which was reviewed and reaffirmed by Dunlop. Spinal anesthesia is indicated when one must produce relaxation and when general anesthesia, such as with ether, is contraindicated. Spinal anesthesia, like other methods of anesthesia, should be used when it

is indicated rather than routinely. In any event the important thing is not to administer a spinal anesthetic to a patient when one is in doubt as to its safety in that particular case.

The infiltration of a local anesthetic agent permits many procedures and requires no particular experience, at least for minor operations; more of the drug may be injected as the operation progresses and it is the safest of all the convenient methods that might be used. Infiltration of the line of incision not only contributes to relaxation, but makes for a dry incision, which is important when cyclopropane is being used.

GENERAL ANESTHESIA

When a general anesthetic is to be employed, it will be necessary to have someone administer it and the choice of the anesthetic agent depends largely on the experience of the anesthetist. Probably more people administer ethyl ether by the semi-open-drop method with safety than any other general anesthetic agent; often, lay people have been pressed into this service, so that the surgeon may be free to carry out the operation or the therapeutic procedures necessary. Divinyl ether, sold under the trade name of "vinethene," can be used, but as yet is better left to the experienced person, since the same results can be obtained in other ways. The use of chloroform or ethyl chloride, either alone or in combination, or with ether, is unsafe. Chloroform is used extensively in obstetrics and apparently with considerable safety, provided that analgesia only is produced; surgical anesthesia is seldom attempted. Ethyl chloride is relatively unsafe for producing general anesthesia, and is frequently also unsatisfactory for producing local anesthesia.

If the patient has been moved to an institution where there are average hospital facilities, an experienced individual will be available for the administration of the anesthetic, in which case a wider choice of agents and methods exists. If a gas is to be employed, the one most commonly available is nitrous oxide, and because of its non-inflammable character and not unpleasant odor it is very useful. However, since it does not produce relaxation by itself, it is necessary to add ether to it, and in most cases preliminary medication is also desirable. If conditions permit the use of an inflammable agent, then ethylene may be used, because more oxygen can be administered with ethylene than nitrous oxide and yet produce anesthesia. Furthermore, ethylene produces some relaxation, but ether is usually added to it and preliminary medication is also used to advantage.

Cyclopropane has recently been introduced and has been more or less generally used; with it still more oxygen may be used, and still more relaxation is produced than with other gases. Occasionally ether is added to cyclopropane and preliminary medication is also employed. Cyclopropane is particularly indicated for patients with pulmonary disease to whom a general anesthetic is to be administered and its inflammable character does not bar its use. The ordinary gas machine may be used for the administration of ethylene, but not for cyclopropane, as it is not practical to use the latter without Waters' soda-lime absorption method.

Intratracheal Anesthesia.—The successful administration of a general anesthetic depends in no small measure on the patency of the patient's airway. Various intrapharyngeal tubes have been devised for the maintenance of a patent airway, but it remained for Magill, of London, to suggest the use of a large, soft, greased rubber tube which could be inserted through the nose or mouth and through the glottis into the trachea. The use of the intratracheal tube is not difficult to master and it is probably one thing which the general anesthetist should strive to learn, because it would make it possible for him to administer the general inhalation anesthetic agents with ease, when it might otherwise be difficult to do so. A further use for the tube is in artificial respiration. This technic should be understood by all general practitioners, for sooner or later every general practitioner is faced with the request that he help in resuscitating some individual. It probably is not desirable to use the intratracheal tube routinely, but it is important that it be available.

Intravenous Injection of Barbiturates.—General anesthesia produced by the intravenous injection of a barbiturate is a method which as yet is not accepted for general use and should not be employed by the inexperienced person. It requires that some experienced person inject the barbiturate intermittently and only in such doses that respiration will not be stopped. Most patients are enthusiastic about the method, although the available facilities for its application should be carefully considered before it is used. On the other hand, certain emergency conditions arise when the use of these agents is practically

life-saving. The fact that they are antispasmodic makes their use desirable and invaluable in the case of patients suffering from such conditions as tetanus, convulsions from eclampsia, strychnine poisoning, meningitis, and so forth. In a strictly medical case, where prolonged effect is to be desired, the use of sodium amytal is indicated. When only a transient effect is to be produced, then a shorter acting barbiturate, such as sodium n-methyl-cyclohexyenyl methyl malonyl urea (evipal) and more recently the thiobarbiturate derivative, sodium ethyl l-methyl butyl thiobarbituric acid (pentothal sodium), are indicated, the latter for short and usually for minor procedures.

Rectal Anesthesia.—When the anesthetic must be given by rectum, either ether in olive oil or tribromethylalcohol (avertin) may be used. The trend is toward the latter, and if it is used it usually should not be given in the full anesthetic dose, but only to produce basal anesthesia, combining a small dose of some local or general anesthetic with it.

SUMMARY

The rational use of anesthetics depends on the wise choice of one or more of the many available agents and methods to suit the needs of the particular patient, his wishes in so far as possible, and the optimal conditions under which the surgeon may best perform the operation. It is unwise to use any agent or method routinely. In choosing the agent or method the skill of the anesthetist must be considered carefully, because the agent or method in itself does not guarantee success. The rational use of anesthetic agents and methods further depends on more attention's being given to them by all concerned in their use. The ever-increasing literature on the subject and the already excellent facilities for observing the administration of the various agents by various methods should be taken advantage of by all members of the profession, because sooner or later each one may be brought into close and personal contact with the problem.

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WELL LEG TRACTION AS AN AID IN THE CORRECTION OF SOME STEREOTYPED ORTHOPEDIC DEFORMITIES*

By J. WARREN WHITE, M.D.,
Greenville, South Carolina

The employment of the principle embodied in the popularly called "well leg traction" apparatus, in my own hands at least, has been so valuable that I have felt justified in devoting my chairman's address to a brief discussion of this particular device. In my estimation a sufficient amount of emphasis has not been placed on its value in the correction of stereotyped orthopedic deformities; in fact, there is little evidence that any emphasis has been placed on it at all.

This seems to be the age of gadgets, particularly in traumatic surgery, and most of the older and more conservative men have so rebelled against the commercialization of the well leg apparatus, so cleverly and one might say expensively put on the market, that they have been slow in according it its proper place in our orthopedic armamentarium. The general appreciation of the tolerance of bone to direct fixation apparatus of various types, together with the advantage derived from its use, is largely responsible for the wholesale employment of transfixing pins, clamps, nails and screws so essential in this type of apparatus.

An enthusiastic surgeon frequently is tempted to load up with a lot of attractive looking, expensive equipment, such as the recently devised forearm extension apparatus, which he would find is largely unnecessary if he thoroughly appreciated the mechanical principles involved. When he finds the apparatus clumsy and difficult to manage, he is inclined to abandon the whole idea rather than to recognize the value of the radial half pin and the ulnar transfixing pin incorporated in separate plaster segments as an invaluable method of control without the rest of the equipment.

By using a very simple arrangement which has as its most important element an ordinary metal shell bracket of appropriate size, such as one would find in any hardware store, I have made myself independent of the equipment that one finds so extensively advertised in the various

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journals and in the commercial exhibits. I have described it in detail in an article appearing in the December number of the "Southern Surgeons" and shall not take time to do it here.

To date, the well leg apparatus has found no place whatsoever in textbooks and in the literature, except as used for fresh fractures. I have seen it mentioned in only one place where it was recommended for any condition other than recent traumata. Eight years ago Dr. Michael Hoke told me that particularly in hip problems he had found it invaluable and he felt that he would be seriously handicapped if he could not resort to it when necessary. It was in Thornton's interesting group of "Bone and Joint Problems" published two years ago that reference was made to it as the "Hoke Plaster Traction Apparatus." In this apparatus one will recall that the plaster on the well leg side was amplified so as to constitute a spica that extended above the costal border. It is to be expected that others, possibly even as far back as Hippocrates, have made use of the same principle, but to my knowledge that is the first instance that any formal recognition of it has appeared in the literature. It is reasonable to believe that in sporadic instances it has replaced the usual traction arrangement where the body weight serves as counteraction, but I feel sure it has not been used routinely in many clinics or orthopedic services except in relation to recent fractures.

I believe that the chief advantage of the well leg traction apparatus lies in the fact that the amount, and to a somewhat less extent, the direction of the traction can be more accurately controlled over extended periods of time than with any other apparatus employing the same care, particularly if an elastic or spring element is employed. Except in cases where extreme traction is indicated, there is no need of elevating the foot of the bed to make use of the body weight as countertraction in addition to that ordinarily exerted against the plantar surface of the foot.

The next most important advantage of the well leg apparatus lies in its compactness and independence of extrinsic appendages such as weights, pulleys and derangeable splints. This facilitates the mobilization of the patient as a whole for such necessary procedures as ordinary nursing care, operations and x-rays, without disturbing the amount or direction of the traction and with opportunity for adequate exposure of the hip, thigh and even the knee. At operation traction can be very expeditiously detached, allowing complete mobilization of the extremity if required.

Before discussing some of the specific conditions that constitute indications for its use, let me mention the mechanical principles upon which I feel its value depends. In order that traction of any sort may be employed there must be some type of countertraction. The commonest method and the one in universal use, of course, is the employment of the patient's body weight itself. Another method is by using some apparatus such as the Thomas splint with a padded ring against the perineum. Any considerable amount of traction of this sort cannot be borne with safety over any great length of time and practically the only use made of this arrangement is as a temporary measure in acute injuries, where the windlass idea is usually employed in obtaining traction. The third method is the one employed in the well leg apparatus: countertraction against the plantar surface on the well side with a cast extended well above the knee to prevent knee flexion. The plantar surface of the foot is, of course, well adapted for weight bearing and if the plaster is properly fitted about the malleoli and knee considerable pressure over long periods of time can be endured with impunity.

It is the ability to employ satisfactorily plantar countertraction which has obscured the less obvious but important fact that a geometrical figure corresponding for all practical purposes to a parallelogram has been constructed and that, therefore, the laws governing the behavior of such a geometrical figure obtain. The theorem proving that the opposite angles of a parallelogram are equal, therefore, shows how complete control of the position of the femur in its relation to the pelvis is made possible by adjustments of the well leg traction apparatus incorporated in a plaster cast on the opposite leg. The functioning of the well leg apparatus as a parallelogram is more apparent in the commercially devised device than in the simpler rigid shelf bracket arrangement where the cross bar itself does not move.

The difficulty frequently experienced in maintaining abduction adequately in cases where the adduction tendency is strong will be recalled when a simple spica rather than a double spica is employed. Too frequently the rotation of the pelvis occurs within the spica, resulting in the conversion of the abduction into a functional lumbar curve. The importance of being able to control and maintain this femuro-pelvic angle is

better appreciated when the above trouble is brought to mind. I feel that one of the difficulties in obtaining a satisfactory ankylosis in arthrodesing operations on the hip lies in this tendency toward gradual adduction after operation in a region where the osteogenic tendency is not good. The employment of well leg traction as an aid in hip fusions, even in tuberculosis, for six to eight weeks, I believe, increases the per cent of final successful results, a minimum of traction of course being employed to maintain the position.

From this it is plainly apparent how it is possible to control the pelvis in its relation to the lower extremities. This gives us the cue to the first indication for its use, which I wish to suggest, namely: as an aid in the correction of lateral curvature of the spine, particularly where the primary curve is in the lumbar region. According to the New York Orthopedic Hospital technic, the position of the pelvis is controlled by the extreme abduction of the hip which frequently necessitates the application of the distressing knee-ear spica, distressing at least to the observer, if not the patient. By using the well leg traction principle which enables one to control the position of the pelvis as just now explained, the leg plaster on the appropriate side may be extended up over the body and the lumbar curve may be attacked by exerting traction on the other side and obviate the necessity for the extreme abduction plaster. Further wedging may be carried on in the body cast according to the Risser or other technic as seems indicated until the desired amount of correction is obtained when the fusion may be done through a window in the usual way.

The next indication which I wish to take up for the employment of this device is in the completion of the correction of those adducted hips which cannot be corrected following osteotomies or manipulations in spite of extensive myotomies and capsulotomies. Frequently the physical condition of the individual does not permit the radical surgical procedure necessary to obtain the desired amount of abduction at the time of operation. In these difficult problems the facility with which gradual abduction can be accomplished in obtaining a desired result not obtainable at the time of operation is of great importance.

It is of particular value in those polio cases with bilateral hip flexion, where with ninety or more degrees of flexion deformity at the start, and where after the usual surgical procedures, the hips do not come down symmetrically, one going into abduction and the other into adduction in spite of what is done. By employing the well leg principle this distressing tendency can be very easily controlled. The danger of dislocating the adducted hip must be borne in mind, however. In these severe polio cases, the hip on the so-called well side is frequently none too stable and can be forced out of place, adducted as it is, with surprising ease and should be watched carefully.

Another indication in problems involving the hip where I have found the well leg traction to be of great aid is in the acute suppurative arthritides, particularly in desperately ill patients, where it is important to watch the skin in the sacral region and where the convenience in dressing a profusely discharging wound directly rather than through a fenestrated cast is a decided advantage. In this instance also the traction that maintains the hip in the proper amount of abduction is most desirable, together with the slight amount of motion that the arrangement follows. If more complete immobilization is indicated, the plaster on the affected side may be extended as a spica and can be more widely fenestrated than a simple spica.

As an immediate postoperative dressing on an arthroplasty of the hip, it might be of some value particularly if for the first ten days or so a spica is used to insure more adequate immobilization if desired.

While skeletal traction is usually employed with this apparatus in the long chronic cases, particularly where position rather than traction is paramount, adhesive or even a simple leather cuff above the knee or ankle can be used as a means of employing traction. In some cases, instead of using plaster, removable braces can be used so that the well leg can be given the required amount of daily exercise to keep it in good condition. I have at the present time a tuberculous hip in an inoperable individual that has been kept comfortable for a couple of years where a simple hip splint proved most unsatisfactory.

I am still impressed with the number of pathological dislocations of the hip that reduce themselves spontaneously, that is, without manipulation or open operation, with the well leg trac-

tion. Dislocations, particularly, of course, in children, of a year's standing or even more as a result of poliomyelitis, contracted cicatrices about the hip or even sepsis respond with surprising frequency to this procedure. It is, of course, of great importance in the preoperative preparation of congenital dislocation of the hip in older children when the open reduction or shelving operation is planned.

At the New Orleans meeting, Key read a paper on the value of positive pressure in arthrodesing operations on the knee joint describing a technic which was extremely ingenious, but which I believe he has subsequently found to be impracticable. The idea, in brief, was to hold the joint surfaces, denuded of articular cartilage in firm apposition by employing rubber bands around pins which were passed transversely through the distal end of the femur and proximal end of the tibia in the sagittal plane of the body.

Believing in Key's idea, I have obtained this desired positive pressure on the bone ends by using the well leg traction principle in a reversed manner to that with which it is usually employed. That is, I have used the unaffected leg for traction, the countertraction maintaining the close apposition, using as much pressure as thought desirable. This arrangement gives added immobilization and makes unnecessary the use of a spica that is almost imperative in relaxed knees such as in anterior poliomyelitis or neuropathic joints.

It is unfortunate that this same plan cannot be used in hip joint arthrodesis, but the adduction that is necessary as a result of the countertraction makes its availability for this joint out of the question.

I have mentioned many of the advantages of well leg traction and realize that this paper would be incomplete without mentioning some of the chief disadvantages as I see them.

First of all, an uninvolved part of the body is immobilized for a long period of time and when a considerable amount of traction is employed, and particularly when the patient is seriously ill, the danger of decubiti is always present, even in casts applied with meticulous care.

Second, there is a definite limitation in the amount of traction that can be safely employed without undue hazard to the good leg. As stated previously, if more traction is desired than seems wise, it can always be obtained by fastening the apparatus to the foot of the bed, elevated to the required amount. Ordinarily the hip joint is not really immobilized unless the cast on the affected side is extended so as to constitute a spica. This can always be done without seriously jeopardizing the functioning of the apparatus.

Third, the apparatus, simple as it is to the initiated, is a little more complicated than most of the more direct procedures, and it sometimes requires a little extra planning to have it work as desired, especially if the commercial equipment is substituted by the less expensive shelf bracket arrangement.

The necessity for a well leg might be cited as a disadvantage, but various subterfuges can be employed to get around this, as in the following case: a compound fracture had been sustained in one tibia and a dislocation of the hip on the other side with a fracture of the superior margin of the acetabulum that necessitated constant traction to keep the femoral head in the socket. A transfixing pin through the femur above the knee on the side with the compound fracture of the tibia was incorporated in the cast that held the compound fracture in position. The pin took the countertraction force on the "well side," permitting the maintaining of the necessary traction on the side with the acetabular fracture.

One might maintain that nothing can be accomplished by this apparatus that cannot be done by simple direct traction. Probably this is so, but in my estimation the maintaining of a sufficient amount of traction in the correct direction over the required length of time requires a great deal more experience, skill and personal attention than with the simple apparatus being discussed. I was trained to use the weight and pulley method of traction associated usually with a Thomas or Hodgen splint, but for the last ten years or so, except in some fresh fractures of the femur and tibia where I still use the Thomas splint, I have abandoned splints and the extrinsic type of traction in those cases in which any considerable amount of pull is necessary.

As was stated at the start, the purpose of this paper has been rather to bring out the general usefulness of a principle than to go into the details of its application, in the hopes that its more general use will be stimulated and that other indications for its applicability will suggest themselves.

SOME PHYSIOLOGIC ASPECTS OF THE TREATMENT OF PERITONITIS*

By THOMAS G. ORR, M.D.,†
Kansas City, Kansas

Any treatment, to be logical, should be based upon the concept that diseased conditions with their perverted functions should be restored to normal by aiding in the reestablishment of the normal physiologic relationships by either specific or supportive therapy. Before any phase of treatment is instituted it should be carefully considered from the standpoint of its effect upon the pathologic processes active at the time so that there may be no interference with nature's own repair work. In the brief outline that follows each factor in the treatment of so-called general peritonitis will be presented from the physiologic viewpoint, endeavoring to correlate the therapy with the natural defenses of the body in its efforts to restore function.

(1) Indications for operation and abdominal drainage.
(2) Indications for intestinal drainage or enterostomy.
(3) Maintenance of gastro-intestinal tone by suction decompression, continuous morphinization and sodium chloride.
(4) Peristaltic stimulants.
(5) Maintenance of water balance.
(6) Maintenance of chemical balance.
(7) Food supply.
(8) Effect upon infection of local application of heat.
(9) Antitoxic serum therapy.
(10) Bed posture.
(11) Oxygen inhalation.
(12) Blood transfusion.

Operative Treatment.—In the early stages of a perforated abdominal viscus, it is logical to remove or close the leak by operation to prevent further contamination. After the infection has spread among the coils of the intestines, operation is probably of little value until the infection has localized as an abscess. The futility of attempting to drain the peritoneal surface of infection is now quite generally recognized. As early as 1905, Yates[1] concluded that any effort to drain the general peritoneal cavity is physically and physiologically impossible. The operative procedure plus the presence of drainage material placed in contact with the peritoneum can only do harm. There is a growing belief that complete closure of the abdomen in the presence of peritonitis is preferable to any type of drainage. Buchbinder[2] and his associates concluded that abdominal drainage increased the mortality in experimental peritonitis. Many clinicians are now closing the abdomen without drainage and by so doing have reduced their mortality in acute peritonitis.[3 4] Since there is no universal agreement concerning drainage of peritoneal infections definite recommendations applicable to all cases cannot be made. If operative treatment is elected, judicious drainage with a minimum of contact between the drain and intestinal surfaces can do very little harm. Drainage is always indicated if there is a local accumulation of pus. In the presence of active infection the abdominal wound should be thoroughly drained to avoid abdominal wall infection.

Various methods have been suggested for cleansing the abdominal cavity at operation. Complete removal of all infection by washing or by chemical sterilization is quite impossible and contrary to known physiologic principles. As an infection progresses over the peritoneal surfaces, a defensive exudate is elaborated which, when disturbed or removed, increases rather than decreases absorption. The experimental work of David and Sparks[5] has shown that a well developed plastic peritonitis almost completely prevents the passage of the *Bacillus coli* from the peritoneal cavity into the lymphatic or blood streams. This was also found true of the diphtheria toxin. From the normal peritoneum, or in the presence of a transudate, both the bacillus coli and diphtheria toxin passed freely and quickly from the peritoneal surfaces into the blood and lymph streams. If the abdomen is opened in the presence of a peritoneal exudate aspiration by suction is indicated, providing defensive peritoneal barriers are not disturbed.

Drainage of Intestine by Enterostomy.—It is doubtful if enterostomy is indicated in cases of acute diffuse peritonitis. In such patients the bowel is distended and has lost its propulsive power. With propulsive peristalsis lost, only a short segment of bowel will be drained by enterostomy. When peristalsis is restored enterostomy is not needed unless there has developed a true organic obstruction, in which instance the colicky pain, visible and audible peristalsis will be diagnostic. In such cases enterostomy is often

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†From the University of Kansas School of Medicine.

life-saving. The observation has many times been made that adhesive obstructions, when relieved by enterostomy, will ultimately recover without further operation. As the inflammatory products causing the obstruction subside, continuity of the gut lumen is reestablished and function restored. An enterostomy is much safer than operative exploration to relieve an obstruction due to recent inflammatory adhesions.

It has been quite well demonstrated that high jejunostomy is in no way superior to continuous gastric suction. The latter will decompress not only the stomach, but the upper small intestine.[6] High jejunostomy is, therefore, not a justifiable therapeutic measure in acute peritonitis and intestinal obstruction.

Under the heading intestinal drainage may also be considered the use of enemata in the treatment of acute peritonitis. It is hardly a rational procedure to attempt to empty the nonfunctioning distended small bowel during the height of the disease. Liquids given in quantity by rectum at this time are difficult to expel and increase distention and discomfort. We have recently shown by animal experimentation that the solutions usually used for enemata do not stimulate peristalsis in the small intestine and, therefore, would not aid in reducing its distention.[7] When the height of the disease process has passed and the bowel function is beginning to be restored, small enemata may be given with benefit. The colon tube may be useful in any stage of the disease to aid in emptying the colon of gas.

Maintenance of Gastro-intestinal Tone by Suction Decompression, Continuous Morphinization and Sodium Chloride Stimulation.—Before instituting any type of treatment to decrease distention careful consideration should be given to the effect distention has on the organism. Is distention a part of nature's protective mechanism or is it an indication of an advanced pathologic condition which must be eliminated before the patient can recover? Every clinician recognizes the favorable change in his patient when the bowels begin to move after prolonged abdominal distention. It is easy to appreciate that the constant desire to witness this turn in events may stimulate treatment designed to make the bowels move in all stages of peritonitis. If it is true that active peristalsis spreads peritoneal infection and increases absorption[8] and bowel distention limits the spread of infection and decreases absorption,[9] it would appear unphysiologic to disturb nature's efforts by constant attempts to reduce distention by increasing propulsive peristalsis in the presence of peritonitis. On the other hand, it is quite apparent that overdistention of the intestine may interfere with its blood supply even to the extent of tissue destruction or gangrene.[10] Recently doubt has been expressed that paresis of the intestine is a defense reaction in peritonitis and peristaltic stimulants are recommended at the first sign of beginning toxic intestinal paralysis.[11] These viewpoints leave the subject in a decided state of indecision. Perhaps a middle ground, avoiding both extreme viewpoints, may be the safest method of procedure in the present state of our knowledge. The use of continuous gastric suction to reduce pressure within the stomach and upper intestine, continuous morphinization[12] and maintenance of a normal concentration of sodium chloride to increase the bowel tone and rhythmic contractions seem to answer the requirements to the extent that the blood supply to the gut will be little disturbed by overdistention and the integrity of the gut, therefore, maintained until natural defenses have overcome the disease.

Continuous nasal catheter gastric suction undoubtedly decompresses the upper gastro-intestinal tract by removing not only the liquid which is prone to accumulate, but the equally important collection of swallowed air and gas. This is done with a minimum of bowel disturbance. Morphine and other opium derivatives have a stimulating effect upon the intestine by increasing its tone and rhythmic contractions. They also produce constipation, chiefly by their spastic action on the alimentary tract sphincters. They obviously do not stimulate the propulsive type of peristalsis to any extent since constipation is the rule when opium is given. The dosage should be sufficient to keep the patient drowsy. Cyanosis or respirations of 15 or below are indications for reduction of dosage. Since hypertonic sodium chloride solutions stimulate bowel tone[13 14 15] and increase peristalsis, it is quite to be expected that by maintaining the body chlorides at a normal physiologic level the tone of the gut wall will be improved in abdominal distention. If the tone of the bowel and rhythmic contractions are maintained during a period of abdominal distention it is evident that the circulation of the bowel wall will remain intact. As soon as the general condition of the

patient begins to improve, morphine should be promptly diminished. To prevent overdistention of the bowel with its resulting disturbed circulation and at the same time to avoid disturbance of the efforts of the body to protect itself against infection is the principle of such treatment. The use of morphine or other opium derivatives is also of value in producing rest, conserving strength, relieving anxiety and minimizing distressing thirst.

The Use of Peristaltic Stimulants.—In view of the generally accepted opinions concerning the protective mechanism of diminished bowel activity, the use of any stimulant which will produce violent peristalsis during the acute stage of peritonitis may well be looked upon with suspicion. In spite of many clinical observations which seem to indicate the usefulness of such preparations as pituitrin, pitressin or other intestinal peristaltics, we cannot yet accept the use of these drugs as a part of the therapy of acute peritonitis without some reservation. Further and more scientific research into the proper clinical application of such products is quite desirable before recommendations for their use are broadcast to the medical profession.

Maintenance of Water Balance.—In acute peritonitis, as in a host of other surgical conditions, the question of water supply to the patient is of paramount importance. Knowing the normal demands of the human organism for water, it is hardly necessary to resort to scientific data to realize that a diseased patient demands a properly balanced intake of water to restore and maintain the physiological and chemical processes of the body. A realization of the possibilities of water loss through disease and operative therapy are necessary to rational hydrotherapy. Decreased normal intake because of illness and excessive loss by vomiting, diarrhea, hemorrhage, serum drainage, perspiration and respiration must all be taken into consideration when judging the needs of an individual patient. Coller and Maddock[16] have recently emphasized the importance of insensible water loss by the skin and lungs in surgical patients, estimating that an average of two liters is lost through these organs during a major surgical procedure. They make the very practical suggestion "that an adequate water intake is one that provides for a two-liter insensible loss, covers fluid losses from the gastro-intestinal tract and furnishes 1,500 cubic centimeters of urine of a specific gravity of not more than 1.015." The average patient with peritonitis will usually require a daily intake of three to four liters of water.

The intake of water can be most accurately estimated when given in the vein or beneath the skin. Unless proctoclysis is very skillfully given it is disturbing to a very ill patient and the actual quantity absorbed is frequently difficult to estimate.

The possible dangers of giving too much water are the development of edema, cardiac disturbance by too suddenly overloading the circulatory system, and embolism as a result of intravenous injections. These dangers may be almost completely eliminated by proper estimation of cardiac function, by watching carefully for evidence of edema of legs, flanks or lungs, and care in giving solutions in the vein.[17]

Maintenance of Chemical Balance.—Physico-chemical changes occur in the body as a result of acute peritonitis. A loss of chlorides by vomiting and accumulation of liquid in the upper intestine is noted in many cases. The use of sodium chloride, Ringer's or Hartman's solutions are fundamentally important in restoring chemical balance, acid-base balance, and in maintaining water distribution. Too much sodium chloride may produce edema. The quantity is best controlled by frequent estimations of the blood chlorides. A marked decrease in the total blood protein is noted in prolonged illness during which food cannot be taken. Therefore, food containing protein should be given by mouth just as soon as the condition of the gastro-intestinal tract will permit.

Food Supply.—To maintain metabolic balance during the destructive activity of disease would approach the ideal in therapy. Since this is not possible, especially in diseases of the gastro-intestinal tract which prohibit the intake of food by mouth, parenteral feeding becomes a method of necessity. Much energy can be produced by giving dextrose intravenously and hypodermically. It may be given with relative safety in 5 per cent solution by vein or in 3 to 5 per cent solution under the skin. Two liters of a 5 per cent solution of glucose in distilled water or combined with physiologic sodium chloride solution may be given daily by the "intravenous drip" or "phleboclysis" method at the rate of 50 to 60 drops per minute. This is satisfactorily sup-

plemented by a like quantity of 3 per cent glucose in physiologic salt solution given by hypodermoclysis. The importance of giving intravenous solutions very slowly is strongly emphasized.

Effect Upon Infection of Local Application of Heat.—The value of moist or dry heat applied to the abdomen in the treatment of acute peritonitis is difficult to estimate. Our experiments indicate that the heat usually applied to the abdomen does not penetrate to the intestinal lumen except in children or adults with very thin abdominal walls.[18] Intestinal tone or motility was not changed by the application of heat to the abdominal wall. Patients are in many instances undoubtedly made more comfortable by the application of heat. This fact, combined with the possibility that it may affect favorably the blood supply to the peritoneum, makes its use advisable.

Antitoxic Serum Therapy.—Vaccine and antitoxic serum therapy have not yet proven their true worth. Many favorable reports of the value of sera have been published and their use should be looked upon with favor. Further experimentation and clinical observation is necessary to establish the exact status of such specific therapy. Such treatment is logical and offers sufficient promise to warrant its use.

Bed Posture.—Vital capacity is greater in the sitting position than in the supine position. Abdominal pain and distention reduce vital capacity. A semi-sitting posture is recommended during the treatment of acute peritonitis to improve respiration, heart action and the patient's comfort. The value of posture as a means of localizing infection in the lower abdomen is open to some doubt. Before distention and plastic exudates develop, gravity may effect the localization of liquid infective material within the abdomen and, therefore, be a definite benefit.

Oxygen Inhalations.—Since a state of anoxemia may exist in peritonitis it is rational to administer oxygen by inhalation methods. Persistent anoxemia causes permanent damage to cells, especially to those of the nervous system. Any evidence of cyanosis or respiratory disturbance is an indication for oxygen therapy. Oxygen may be given by the use of one of the many tents designed for the purpose or quite efficiently and simply through the nasal catheter.

Blood Transfusions. — If anemia develops transfusion of blood is indicated. It may be of some value directly to combat the infection and to aid in restoring the blood proteins.

CONCLUSIONS

One cannot review the subject of the treatment of acute peritonitis without realizing that many phases of the disease process are poorly understood. It is difficult to differentiate between those changes which may be a part of nature's effort to combat the disease and those which may be destructive as a result of the toxic effect of the infection. Since this is true it is quite to be expected that differences of opinion concerning therapy may exist. To be dogmatic without positive evidence is dangerous teaching. We can only weigh these differences of opinion in the physiologic balance and act on the most logical evidence available at this time, recognizing with an open mind that new developments may change our therapeutic viewpoints.

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POSTOPERATIVE TREATMENT*

By ALTON OCHSNER, M.D.,
New Orleans, Louisiana

Altogether too frequently following the completion of an operative procedure the operator (who indeed does not merit the appellation of surgeon) considers his responsibility to the patient finished. Although most patients will recover from a properly performed surgical procedure irrespective of the postoperative treatment, the smoothness of their postoperative convalescence, all else being equal, is dependent upon appropriate postoperative therapy. There are, however, cases in which appropriate after-care is responsible for saving the life of the patient. Whereas most patients and even most physicians believe that a patient who has recently had a laparotomy should necessarily have considerable discomfort consisting of nausea, vomiting and gas pains, this is seldom necessary and can easily be prevented by the institution of appropriate postoperative measures. Unless the surgeon considers the patient recently operated upon as one with disturbed physiologic processes, his treatment during this period is likely to be empiric and unsuccessful as regards the relief of the patient's immediate symptoms.

In every patient who has had a laparotomy or whose peritoneum has been traumatized in any way, as in retroperitoneal operations on the kidney, the gastro-intestinal tract is functionally inactive (functional ileus) for varying periods of time. Nausea, vomiting, gas pains, and abdominal distention are the clinical manifestations of this functional ileus. The degree, the extent, and the duration of functional ileus are dependent upon and proportionate to the amount of intraperitoneal trauma during and following the operation. The greatest degree of ileus is associated with continued trauma to the peritoneum, for example, from infection, as occurs in peritonitis. In contrast to this continued peritoneal trauma is the mechanical trauma to the peritoneum which occurs during the operation as a result of the manipulation of the intra-abdominal viscera and the chilling and drying of the peritoneum. Trauma from these causes ceases with the completion of the operation, although the peritoneal reaction persists for a short period of time.

As the gastro-intestinal tract is functionally inactive in the presence of ileus, it is essential that no demands be made upon it during this period of time. The function of the upper gastro-intestinal tract is secretory and digestive, whereas the lower part of the gastro-intestinal tract is absorptive. Normally large quantities of secretion rich in electrolytes are emptied into the upper gastro-intestinal tract from the stomach, the duodenum, the liver, and the pancreas. This is transported into the lower intestinal tract, whence fluid and electrolytes are reabsorbed into the blood stream. In the presence of ileus, however, the normal transportation to the lower portion of the intestinal tract of the upper intestinal secretions which are actually increased in amount is abolished, resulting in stagnation of the secretion in the secretory portion of the gastro-intestinal tract, from which little or no absorption occurs. Enderlen and Hotz[1] showed that in ileus there is decreased tone and diminished movement of the gut musculature associated with decreased absorption from the gut, and Mueller[2] showed that there is increased secretion into the gut lumen in ileus. Because of the increased secretion and the lack of motility of the intestine in ileus, there occurs an abnormal accumulation of the secretions of the upper gastro-intestinal tract in the stomach and the duodenum, which, unless they are removed from the body in some way, cause nausea, vomiting, and abdominal distention. The accumulation of fluid in the stomach is likely to produce further dilatation of the stomach, resulting in increased secretion, so that a vicious circle is established which may end in acute gastric dilatation.

Fortunately, in the case in which there has been a minimal amount of peritoneum trauma because of the short duration of the operation and gentleness in handling the intra-abdominal viscera, the ileus which is functional in character is not prolonged and generally lasts from eight to twelve hours. In contrast to such a case in which spontaneous relief of the ileus occurs without any therapy except the avoidance of those factors which produce an abnormal accumulation of fluid in the gastro-intestinal tract during the period of function inactivity, is the case in which there is prolonged peritoneal irritation resulting in persistent or progressive ileus. It is, therefore, necessary in the consideration of the postoperative treatment of patients who have had laparotomies to differentiate cases with functional ileus from those with true adynamic ileus.

The treatment of functional adynamic ileus is

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*From the Department of Surgery, Tulane University School of Medicine, New Orleans, Louisiana.

largely one of prophylaxis, because, as was mentioned above, by avoiding those procedures which overburden the gastro-intestinal tract during the period of functional inactivity, persistence of the inactivity can be prevented with resultant prompt recovery from the ileus. It is imperative that the patient receive nothing by mouth during this period, as no substance taken into the stomach will be transported downward in the intestinal tract. Morphine is given because, as shown by many investigators (Plant and Miller,[3,4] Gruber *et al.*,[5,6,7] Dvorak *et al.*,[8] Orr,[9] and Ochsner, Gage and Cutting,[10]) morphine exerts a powerful stimulating effect on the intestinal activity and does not inhibit it as considered by many clinicians. In our own investigations[10] we found that the principal effect of morphine on intestinal activity is to increase the tone without affecting the peristaltic movement materially. This is undoubtedly the reason why it is of value in the treatment of ileus. It prevents abnormal distention of the bowel by the accumulated gas and fluid. Morphine also exerts a similar effect on the gut which is already distended and will produce tonic contraction of the bowel as effectively as any other measure. Its greatest effect is obtained in those cases, however, in which it is used prophylactically before distention has occurred. The dose of morphine administered depends obviously upon the age and the size of the patient. Ordinarily in an adult with functional adynamic ileus, morphine, grains ¼, is administered every four hours and continued until normal gastro-intestinal activity has been resumed, which is usually after twenty-four to forty-eight hours. We are convinced from our clinical and experimental observations that morphine administration to these patients is of value, not because of its analgesic effect, but because of its tonic effect on the intestinal musculature. The dose of morphine used in severe types of adynamic ileus is proportionate to the severity and the extent of the peritoneal irritation. To patients with peritonitis in whom the peritoneal trauma is progressive and persistent, morphine is administered in large quantities and in sufficient amounts to keep the patient narcotized, as originally suggested by Alonzo Clark[11] in the treatment of peritonitis. Morphine administration today is not a great deal different from that advocated by Clark, although Clark's reasoning was not correct in that he thought that morphine inhibited the gut activity and in this way prevented dissemination of the peritoneal infection. It is now known that morphine administration is beneficial because of its tonic effect on gut musculature.

In those cases receiving large doses of morphine and those with peritonitis in which the patient is kept narcotized by opium derivatives, it is desirable to administer oxygen. We have used inhalations of oxygen in these cases for a number of years, hence we think that the anoxemia subsequent to the administration of morphine which depresses the respiratory center, is probably detrimental. Equally, or more important, is the effect which the administration of oxygen has on the absorption of nitrogen from the intestine. McIver, Redfield and Benedict[12] showed that inhalations of pure oxygen favor the absorption of nitrogen from closed loops of bowel. Relatively recently Fine, Sears and Banks[13] conclusively proved that the total amount of gas in the intestine can be definitely decreased by inhalations of oxygen. Undoubtedly the administration of oxygen in such patients exerts a beneficial effect on the intestinal distention by favoring the absorption of nitrogen from the intestinal lumen. Fine, Sears and Banks[13] showed that in the experimental animal only 3.4 per cent of the total gas volume from the intestine is absorbed after twenty-four hours; but after the administration of oxygen there is a progressive decline in this volume until a maximum reduction of an average of 59.2 per cent is reached. These investigators have shown also the necessity of prolonged administration of oxygen for at least twelve hours rather than short, sporadic administrations.

Heat is applied to the abdomen postoperatively of all patients who have had a laparotomy, because the application of heat tends to prevent the development of ileus. Mueller[2] showed that the application of heat to the abdomen increases the somatic circulation and that concomitantly there is a decrease in the splanchnic blood supply, which in turn favors intestinal peristalsis and decreases intestinal secretion. By the decrease in intestinal secretion of gas and fluid the ileus is likely to be relieved and the return in the gut tone favored. Long before Mueller's explanation of the beneficial effects obtained by the application of heat to the abdomen in cases of ileus, we[14] observed clinically that this procedure was of value.

Because in ileus normal intestinal movement is lost and the secretions are abnormally increased, stagnation of the gastric and duodenal secretions occurs. If the functional ileus is for some reason prolonged it is imperative that these

stagnant secretions be removed from the stomach and duodenum, because otherwise the patient becomes nauseated and vomits. The removal of these secretions and the relief of the intragastric and the intra-enteric pressures is best accomplished by continuous suction through an indwelling duodenal catheter, as suggested by Wangensteen.[15] A persistent functional ileus usually follows operations in which there is considerable intraperitoneal trauma, such as operations upon the liver, bile passages, stomach, intestines, and in fact all intra-abdominal procedures except simple appendectomy. In such cases it is the rule in our clinic that a Levin duodenal catheter be introduced while the patient is still on the operating table. Active suction is started and decompression of the stomach and duodenum are obtained. In this way postoperative nausea and vomiting can be completely prevented, and it is my firm conviction that no patient with a laparotomy should ever be allowed to become nauseated or vomit. When vomiting occurs, it indicates that physiologic ileus is not being recognized and that there is an abnormal accumulation of secretions in the stomach and the upper intestinal tract. After decompression of the stomach and the duodenum by removal of the fluid and gas, abdominal distention does not occur.

It is imperative during the course of the functional ileus to avoid giving those substances which predispose to gas formation. We have learned empirically that the administration of sweetened juices, such as orange juice and other sweet drinks, increase abdominal distention and the patient's discomfort, and for this reason we do not permit their administration until intestinal activity has become normal. Recently Fine and Levenson[16] showed in an extensive investigation that, although dilute glucose solutions are absorbed readily from the normal intestine, whenever there is disturbance in intestinal function abnormal gas formation results. In our experience, everything else being equal, the amount of postoperative abdominal distention is directly proportional to the frequency and the amount of sweetened drinks ingested.

In cases with minimal peritoneal trauma (simple appendectomy), withholding everything by mouth during the period of functional ileus is generally sufficient to prevent persistent ileus. After the functional ileus has subsided, sips of hot water may be allowed. Iced drinks should be avoided, because they tend to produce gastric dilatation. If the patient is able to tolerate water without nausea, he may then be allowed hot tea or fat-free broth. The patient with an indwelling duodenal catheter with active suction can have as much warm water as he desires, because the excessive amount of fluid is removed from the stomach by suction. It is important in these cases to determine whether the patient has a positive or negative pyloric balance, as suggested by Bartlett.[17] In this way one can determine whether there is any absorption of the ingested fluid or whether the patient is losing some of his own gastro-intestinal secretions. Active suction must be maintained as long as there is a negative pyloric balance, but as soon as the balance becomes positive, that is, when the amount of fluid ingested is more than that recovered from the tube, the tube may be removed.

After the period of functional ileus has subsided and shortly after the patient is able to tolerate hot water, hot unsweetened tea, or fat-free broth, he is given strained cereals and toast. Clinically we have observed that these foods produce little discomfort and are not likely to produce abdominal distention. Fine and Levenson[16] showed that certain carbohydrates, such as toast, gruel, and macaroni, produce little gaseous distention, but that the ingestion of milk results in considerable distention. After the patient is able to tolerate these foods, he will probably be able to take almost anything that does not especially produce gas, such as sweetened fruit juices, other sweetened drinks, and milk, which he should not receive until the gastro-intestinal tract has completely resumed its functional activity. It is our belief that absolute rest of the gastro-intestinal tract is imperative until the functional ileus has completely subsided, following which the diet can be relatively rapidly increased.

It is surprising that even today in this age of scientific enlightenment many surgeons still believe that early evacuation of the intestinal tract is necessary and resort regularly to frequent and copious colonic flushes and the administration of enemas. It is perfectly illogical and corroborated by clinical experience that the patient with a functionally inactive gastro-intestinal tract will be almost as ineffectual in evacuating the fluid introduced rectally as he is in evacuating his own intestinal fluid and gas. As a matter of fact, almost invariably the patient's symptoms and the abdominal distention are made worse after the administration of enemata or flushes. The degree of abdominal distention and discomfort are directly proportionate to the number and size of the flushes which are administered. Likewise the use of violent cathar-

tics during the period of functional inactivity of the gastro-intestinal tract should be condemned, because by increasing violent peristalsis a persistent ileus can result. A patient who has taken little or nothing by mouth preoperatively has relatively little residue in his intestinal tract, and it is immaterial whether he defecates within the first three or four days or not. It is, however, desirable to prevent inspissation of his fecal material which may occur because of its relatively long stay in the colon. Inspissated fecal material, especially in a patient who recently has been operated upon, may result in fecal impaction, which should be obviated. Prevention of fecal inspissation and impaction is best accomplished by the early administration of mineral oil, which is begun as soon as the patient is able to take any food. It is given preferably twice a day in doses from ½ to 1 ounce and is continued until the patient is out of bed. Usually the patient will defecate on the third to fourth day, but it causes us no concern if defecation does not occur before the sixth or seventh day.

Postoperatively there occurs almost invariably, especially if the patient has been operated upon under general anesthesia, dehydration which is due principally to two factors: (1) withholding of the fluid preoperatively for a period of hours, and (2) insensible water loss (in perspiration and expired air), which, according to Coller and Maddock,[18] amount to as much as 1,000 or 1,500 c. c. in twenty-four hours. In addition to these two factors, dehydration may occur, especially in the patient in whom the functional ileus persists for a period of time because of the loss of the gastric, duodenal, pancreatic, and biliary secretions. The amount of these secretions lost in twenty-four hours is frequently very large and it is necessary that they be replaced, because in addition to the inability to take fluid by mouth, there is an actual loss of fluid and electrolytes from the body. Although the patient with functional ileus will probably require no additional fluid administration because of the relatively short duration of the ileus (from eight to twelve hours), following which he is able to take fluid by mouth, it is important to replace the fluids and electrolytes in those patients in whom the ileus has been more persistent. We employ intravenous infusions because we have found that they are less disturbing to the gastro-intestinal tract than a rectal drip and certainly less painful than subcutaneous administrations. It is important, however, if intravenous infusions are used that they be well buffered; otherwise, severe and frequently distressing reactions result. We use physiologic salt solution, preferably Ringer's or Hartman's, or 5 per cent dextrose intravenously. Enough fluid should be given to hydrate the patient so that, as suggested by Coller,[8] the urinary secretion is from 1,000 to 1,500 c. c. in twenty-four hours. It is imperative that dextrose solution of concentration as great as 10 per cent or greater be combined with insulin, because as we[19] have shown, the intravenous administrations of 10 per cent solutions of dextrose result in inhibition of gut activity, whereas if these solutions are combined with insulin, this inhibitory action is not observed. Generally, however, 5 per cent dextrose solutions are well tolerated intravenously and need not be combined with insulin.

There is still some controversy among clinicians concerning the necessity for catheterization. It is a rule on our service that patients be catheterized every eight hours. From our clinical experience we are convinced that one need never fear a so-called catheter cystitis as long as the bladder is normal and not over-distended. Infection in the bladder, as elsewhere in the body, occurs in the presence of stasis or changes in the bladder wall. Distention of the bladder with its accompanying vascular changes lowers the resistance of the bladder which permits infection. The high incidence of bladder infections following catheterization in cases of urinary retention is undoubtedly due to the diminished resistance of the bladder as a result of over-distention and stasis. It is not the result of the introduction of micro-organisms at the time of catheterization. It is imperative in all such patients to prevent stasis and over-distention of the bladder by frequent catheterizations. In our clinic, where catheterization is done every eight hours postoperatively until the patient voids spontaneously, postoperative cystitis is an unknown complication.

SUMMARY

(1) Functional ileus follows all laparotomies, and its peristence and degree of severity are dependent upon the extent of the peritoneal trauma.

(2) During functional ileus the gastro-intestinal tract is functionally inactive and nothing should be allowed by mouth.

(3) In persistent adynamic ileus which is caused by excessive trauma (mechanical or bacterial) decompression of the stomach and duodenum by active suction through an indwelling duodenal catheter is imperative.

(4) Morphine should be given in liberal doses because of its stimulating effect on the gut tone.

(5) Heat to the abdomen increases gut tone and decreases intestinal secretion.

(6) Hydration and remineralization are necessary to replace the fluids and salts removed in the gastroduodenal secretions.

(7) Oxygen is administered in severe cases of ileus, because it prevents anoxemia from morphine administration and favors nitrogen absorption from distended bowel.

(8) Frequent catheterizations prevent cystitis.

(9) Enemas, flushes, and cathartics have no place in the postoperative treatment.

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CHRONIC LUNG DISEASE*

By JAMES ALEXANDER MILLER, A.M., M.D.,†
New York, New York

Chronic diseases of the lung are of many varieties and are due to many diverse causes. In the aggregate they form a very important percentage of all the organic diseases with which internists have to deal. But frequently we meet them in such advanced stages that as a class I feel they often lack medical interest to us because of the comparatively hopeless attitude in which we approach our task of attempting remedial treatment.

It will be my aim to make the attempt to inject an element of hope and of interest in these cases, largely from the standpoint of the possibility of their prevention and also, though possibly with less success, from the standpoint of their relief if not of their cure.

In addition to this I will attempt to establish certain basic principles which underlie the pathogenesis of all of these diseases of whatever causation, and thus hope to establish an understanding of the many characteristics which they have in common, and through a study of their pathogenesis, to reach a more hopeful and rational basis for their treatment.

In this category of chronic lung diseases we shall for our purposes include such diverse conditions as chronic bronchitis, bronchial asthma, emphysema, interstitial pneumonitis and other types of fibrosis, especially the pneumoconioses, and bronchiectasis. In addition to these also some of the chronic infections, such as pulmonary tuberculosis, chronic lung abscess and other less common zymotic diseases, and finally we shall include the various chronic lung conditions which are associated with diseases of the cardiovascular system.

Out of this rather motley array it may simplify our thinking to trace some definite and fundamental similarities in their evolution and clinical manifestations and thus lay a foundation for certain principles of preventive and remedial treatment.

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*From the Tuberculosis Service of Bellevue Hospital.

†Professor of Clinical Medicine, Columbia University, New York, New York.

FIBROSIS AND EMPHYSEMA AS THE ULTIMATE RESULT OF ALL CHRONIC LUNG DISEASE

In a recent article[1] I have discussed fibrosis and emphysema from this point of view. When we come to analyze the various chronic lung diseases already mentioned it is apparent that in all of them, particularly in their more advanced stage, fibrosis is an invariable result. In the diseases of infectious origin, such as tuberculosis and pulmonary suppuration, we have of course the effect of the bacterial infection as shown by the local destruction of tissue and constitutional toxemia, together with the ever-present possibility of further spread of the infection from the original foci. But even here in the chronic stages, extensive pulmonary fibrosis results as a localizing or reparative process.

In other types of infection, as in the various forms of organizing pneumonia and interstitial pneumonitis with or without bronchiectasis, the pulmonary fibrosis dominates the pathological picture from the beginning.

In the inhalation or occupational diseases such as the pneumoconioses, of which silicosis is the most important example, pulmonary fibrosis is the outstanding feature.

In many of the chronic cardiovascular diseases the effect of stasis and perhaps also the effect of the original infection which has caused them, results in changes in the capillary bed in the lung which frequently lead to marked pulmonary fibrosis.

In the case of emphysema we find that this condition occurs invariably in association with fibrosis as an expression of the attempt at compensation upon the part of the nonfibrotic areas of the lung, so that we find that some degree of emphysema as well as fibrosis also occurs in all chronic lung disease. In cases in which the emphysema dominates the clinical picture, as in so-called essential emphysema, we find not infrequently that the encroachment of the distended lung areas may interfere with the circulation and drainage function of the other lung areas, so that fibrosis in time results.

Thus we find fibrosis and emphysema together dominating the clinical picture not as independent clinical entities, but as the inevitable accompaniments of all of the various chronic lung diseases under discussion.

The Functional Basis of Pulmonary Fibrosis and Emphysema.—When we pursue our analysis of the situation further we find that both fibrosis and emphysema owe their origin to a disturbance of pulmonary function.

In the case of fibrosis it is impairment of the drainage function, and in the case of emphysema it is the lack of adaptation to the requirements for adequate breathing surface creation which is at fault.

We further find that the first manifestations of these functional disturbances occur in the air spaces of the alveoli and smaller bronchi.

At first slight, these disturbances produce few symptoms, only those of a recurrent bronchitis or sometimes associated with bronchial spasm or asthma.

As these conditions persist or recur, then gradually increasing failure of these pulmonary functions occurs and manifest fibrosis and emphysema result.

As we follow the course of these conditions we find that in order to understand them we must think in functional or physiological terms instead of entirely in those of pathological tissue changes as has largely been our custom.

THE CLINICAL MANIFESTATIONS OF CHRONIC LUNG DISEASE

Symptoms: Cough and Expectoration.—The most characteristic symptom of chronic lung disease is cough, usually associated with expectoration. This is nature's attempt to correct the failure of natural drainage, and it may or may not be effective.

These symptoms of cough and expectoration are exhibited in all chronic lung diseases, from the earliest to the latest stages.

When no other symptoms are present the functional impairment is slight, but when persistent or frequently recurring they point to increasing disease, with the accompanying increase in the amount of functional as well as of pathological damage.

The clinical significance of such chronic cough and expectoration is all too frequently overlooked. Not only in tuberculosis, in which it is fairly well understood, but also in the other chronic lung diseases the recognition of their significance is quite as important if we are to prevent the subsequent development of disabling and of incurable disease.

Dyspnea.—As our chronic lung disease progresses, shortness of breath, at first on exertion and later even at rest, is a symptom common to them all.

Dyspnea is an evidence of respiratory failure, expressed in subjective distress and referred to the extrinsic respiratory apparatus of the chest-wall and diaphragm. Its basic cause, however,

is failure of the respiro-cardiac function and in its earlier phases mainly the respiratory function. Frequently it is the main symptom of which the patient with chronic lung disease complains and its significance is always great even when its cause in terms of recognizable pathological change is not obvious.

Cyanosis.—When our disease becomes so advanced as definitely to impair cardio-respiratory function, then cyanosis as well as dyspnea occurs.

The serious significance of this symptom is obvious. It always denotes severe functional damage and frequently extensive pathological change as well.

While we must integrate disturbed circulatory and respiratory function as a joint problem, it is important in chronic lung disease to determine which factor, the cardiac or the pulmonary, is mainly at fault if we are to institute appropriate treatment. Certain functional tests are of assistance in this determination.

Other Symptoms.—When our chronic lung disease is due to infection we have of course additional symptoms of infection, such as fever and associated systemic disturbances.

Physical Signs.—The physical signs of chronic disease in the lungs are of course important in determining the character and location of the lesions as well as their extent.

Among all of the various physical signs the appreciation of the presence and the character of rales is of outstanding importance. In general, the presence of rales represents the presence of abnormal secretions in the air spaces and passages, due to inflammatory exudate, to destruction of tissue, or to abnormal fluid retention. Rales, therefore, indicate a failure of the normal drainage function, and their number and degree of moisture indicate the extent of such failure. The ability properly to elicit rales often determines the question of early diagnosis. The appreciation of their changing character is an especially valuable guide to the progress of the disease.

If the amount of meticulous study which has been devoted to the recognition of slight unusual deviations from the normal physical signs in other directions could be concentrated upon the study of rales and their significance, much progress would be made toward the more general and better understanding of chronic lung disease.

Roentgenological Signs.—The roentgenogram affords perhaps the most fruitful source of the information in these diseases.

The practitioner of medicine must learn to appreciate and interpret them for himself if they are to attain their full value. This takes time and study, and there are many pitfalls.

At the present time, however, it is my purpose only to emphasize the presence of certain peculiar difficulties in the class of cases which we are now considering, which are due to the fact that associated fibrosis and emphysema tend to obscure each other upon roentgen films. The exact physical and optical laws underlying these reactions are not well understood, but the facts are well known. For example, the liver, normally densely opaque to the roentgen ray, may become translucent when a large loop of bowel distended with gas overlies it, or the filtration effect of the bony rib makes obvious a density in the underlying lung, which same density is invisible in the intercostal spaces by the same ray. Or again, extensive fibrotic processes in lung or pleura obscure underlying cavities in the ordinary roentgenogram, which can easily be brought out by special procedures and different penetration. This being so, it is easily understandable how fibrosis, which produces increased densities, and emphysema, which is associated with increased air content, would not only very definitely affect the roentgenological picture in themselves, but also have mutually important influences upon each other. Therefore, it is of great practical importance to appreciate the limitations of the roentgenological method of examination in the interpretation of pulmonary lights and shadows in terms of definite pathological conditions, unless special technical precautions are taken to avoid error.

Clinical Tests of Lung Function.—We have already mentioned the emphasis which we place upon the problem of function in chronic lung disease, and appreciation of its importance is leading gradually to the development of clinical and laboratory tests which may be of assistance in the understanding of this in similar diseases. Up to the present time it must be admitted that the value of these tests is somewhat limited and that the conclusions to be drawn from them must still be considered of a tentative nature.

It would appear that such functional studies may be of the greatest importance in the question of prognosis, for extraordinary variations in tolerance to apparently similarly extensive disease are found. Also they may afford an opportunity to discover constitutionally predisposed individuals and to remove them from untoward conditions or other environment before advanced and debilitating disease has resulted. Finally,

in the now rapidly growing field of thoracic surgery, these tests may afford a basis for the better selection of suitable operative risks and may point the way to appropriate measures to meet emergencies as they arise during or after such operations.

These functional tests include the determination of lung volumes by special methods and also spirometry. They also include studies of the pulmonary circulation, such as venous pressure, blood velocity and cardiac output. They include studies of the physicochemical state of the arterial blood, such as the oxygen (O_2) saturation, the carbon dioxide content, the level of the carbon dioxide dissociation curve, the pH, and so on. Other methods of study are analysis of alveolar air samples; also studies of the total ventilation estimate the O_2 intake and CO_2 output, determining the metabolic rate of the body and the level of ventilation required.

All of these functional tests are best made both at rest and after exercise, the latter being particularly valuable in the estimation of the degree of respiratory dysfunction, and are described in more detail in the article[2] already cited.

Of course, all of these various methods of clinical investigation must be correlated and used as a whole in the determination of the character and extent of the disease and the impairment of function which it has caused.

THE CLINICAL EVOLUTION OF CHRONIC PULMONARY DISEASE

For practical purposes the clinical evolution of chronic pulmonary disease may be separated into three phases:

(1) *The Bronchial Phase.*—It has already been brought out in our discussion of the pathogenesis of fibrosis and emphysema that the primary cause has been found to lie in the air passages, so that in the earlier phases, while the process is mild and well compensated, it remains localized in these passages. There may be temporary or localized pulmonary congestion with interference of drainage function, which manifests itself by a group of symptoms usually attributed to bronchitis. We also see these changes going over into chronic persistent bronchial catarrh, frequently associated with allergic asthmatic paroxsyms in predisposed individuals. This predominantly bronchial phase may persist for a long time before a definite or marked change in lung function occurs.

The recognition of the importance of this bronchial phase as the forerunner of serious lung disease has already been emphasized, and from a clinical point of view it would appear that this is the phase in which properly directed protective measures might control the development of serious disease. Effective preventive treatment of cases at this stage in time might considerably diminish the prevalence of the more serious lung conditions, fibrosis and emphysema.

(2) *Pulmonary Phase.*—Sooner or later if the bronchial condition persists, general lung function shows increasing signs of embarrassment which requires definite compensatory effort, and then the clinical picture takes on the aspect of real pulmonary disease. In the literature we find this phase described either as chronic emphysema and bronchitis, or as chronic pulmonary fibrosis associated with bronchitis or bronchiectasis, or as a combination of these conditions, with or without specific associated infection as in tuberculosis. For, as is very evident, the transitions and interactions of these conditions from one to another are very fluent.

(3) *Respiro - Circulatory Decompensation Phase.*—As the conditions persist and advance, increasing respiro-circulatory embarrassment is evident, and then cardio-circulatory compensatory effort becomes a conspicuous feature of the clinical picture. Hence we may call this phase the respiro-circulatory decompensation phase. It is extremely important to recognize the interdependence of the respiratory and circulatory function in advanced pulmonary disease. Yet in the later stages the interaction is so confused that it is frequently difficult to state whether the symptoms presented are due mainly to respiratory or, on the other hand, to circulatory decompensation. While it is often extremely difficult to assess the relative importance of the respiratory and circulatory function, from the clinical point of view the important thing to emphasize is their close interaction, and to realize that in the end-stages of chronic pulmonary disease failure of function in both of these vital systems may develop.

TREATMENT

Far too many cases of chronic lung diseases are recognized only in their later stages when effective treatment is almost hopeless.

With the exception of such localized chronic infections in the lungs as tuberculosis and chronic suppuration, in which conditions modern thoracic surgery has done so much, remedial treatment offers as a rule only symptomatic relief and not cure, and of course in these two ex-

ceptions to the general rule, the effect of any treatment, either medical or surgical, is much more effective the earlier it is applied.

In most of the chronic conditions which we are considering, prevention of their progress while they are still in their early stages should be our chief object.

Preventive Treatment.—It is generally recognized that early diagnosis and treatment in tuberculosis and suppuration is of vital importance, but the early signs and symptoms which are the forerunners of extensive fibrosis, whether due to infection or inhalation of foreign matter, and of emphysema and of chronic bronchitis and asthma and of bronchiectasis, are all too often overlooked.

It is in this latter class of cases that the recognition of the significance of what we call the bronchial phase is so important. Persistent or often repeated attacks of bronchitis, characterized mainly by cough and expectoration, frequently without serious constitutional disturbance or evidence of actual lung damage, furnish the basis upon which the advanced cases later develop. This is particularly true in childhood, where these apparently banal conditions are specially apt to lead to permanent and serious damage. The fact that there exist wide constitutional differences in the reaction to infection or to dust inhalation, is not sufficiently appreciated, as is the case also concerning the effectiveness of protective measures promptly and properly applied.

There is little doubt that if the main etiological factors, such as infected tonsils or sinuses, allergic hypersensitiveness of various sorts, and the special susceptibility of certain individuals to pulmonary fibrosis from dust inhalation, were recognized and corrected during the bronchial phase, a large percentage of the cases of chronic disabling and often fatal lung disease could be prevented.

Remedial Treatment.—But even in the more chronic cases certain measures may be helpful in palliating if not curing the condition, and it is to be noted that the general principles of treatment are the same for the entire group of diseases, independent of their specific etiology, and it is also again to be emphasized that these measures are effective in direct proportion to the stage of the disease in which they are applied.

Rest.—Rest is the fundamental basis of all treatment for chronic lung disease. Very few people recognize what a real rest cure means, and this applies to many physicians as well as to their patients.

Effective rest treatment requires a systematic course of training and education, in which all details of the manner of living, habits of mind as well as of body, are meticulously regimented and supervised, with due consideration to factors of environment and individual idiosyncrasies. Rare judgment is especially required in that difficult period when absolute rest is slowly replaced by increasing liberties and by graduated exercise, in which the degree of liberty or of limitation can be determined only by study of each individual patient and not by any general rule.

The best examples of rest treatment along these lines are found in our sanatoria for the treatment of tuberculosis. Physicians who desire to become adept in the treatment of any of the chronic lung diseases would do well if they could have the opportunity of training in such institutions. Also it is often to be found that the patients require some such institutional training before they can satisfactorily and intelligently carry out a rest cure in less favorable environment, particularly in their own homes.

Promotion of Drainage.—Just as failure of bronchial drainage is a potent factor in the causation of fibrosis, so is its promotion important if the progress of the condition is to be controlled.

Cough with expectoration is nature's method of drainage which often can be made more effective by proper measures such as medication to diminish the viscosity of the expectoration, and changes of posture to facilitate its elimination. Drugs which control cough, particularly opiates, often do harm by interfering with its productiveness, and they should be employed with great care and caution. Bronchial spasm also favors the retention of secretion, and when present calls for the use of antispasmodics such as epinephrine and atropin.

Open-air life in itself is often a valuable aid in the regulation of cough, and the air of dry climates has a definite effect in diminishing the amount of bronchial exudate which is secreted.

Prevention of Reinfection.—We have already discussed the role of bacterial infections in the causation of pulmonary fibrosis, and in its treatment their prevention or control is also of great importance. This applies especially to infections of the upper air passages, and the adequate treatment of the chest conditions frequently demands primarily the elimination of such foci of

infection as may exist in the tonsils, the sinuses and the teeth, with their ever-present danger of reinfection to the lungs.

The prevention of acute coryza and its prompt treatment is of equal importance, and a manner of life in a suitable environment or climate which will diminish the likelihood of such infections is most desirable. This accounts for the favorable effects of mild equable climates and for the comparative advantage of the summer over the winter season as well as the general advantage of country over city life.

In the earlier stages of many chronic pulmonary diseases these symptoms can be controlled or eliminated entirely for years at a time by these methods, even though complete cure may not be effected.

The Promotion of Gas Exchange.—In the later stages of chronic pulmonary disease, when symptoms of dyspnea and cyanosis occur, interference with normal respiratory gas exchange is present. The character and degree of such disturbance may be determined by some of the functional tests which we have mentioned. For example, excessive residual air is found associated with the dyspnea of emphysema, and deficient arterial O_2 saturation is found in both fibrosis and emphysema and may be determined by the chemical examination of the blood obtained by arterial puncture.

Oxygen therapy affords great symptomatic relief in many such cases. The oxygen may be administered by intranasal catheter, in an oxygen tent, or in an oxygen chamber. This method of therapy has a much wider field of usefulness than simply in acute pneumonia, to which disease its use is too frequently restricted.

Under the guidance of functional tests and in conjunction with other methods of treatment, especially bed rest, the skillful use of oxygen inhalation has great value in the symptomatic treatment of all forms of chronic pulmonary disease.

The Support of Circulatory Failure.—We have already emphasized the close interrelation of respiratory and circulatory function. In chronic lung disease in the later stages the failure of the circulatory function is most marked and its occurrence is usually evidenced not only by dyspnea, but also by cyanosis and sometimes by edema. This circulatory failure may be due to conditions in the heart itself or to circulatory obstruction in the capillary bed of the lungs, and to differentiate between circulatory and respiratory failure is not always easy.

The electrocardiogram may give information of great value, and recently Caughey has devised a brilliantly conceived functional test of considerable usefulness. In the study of venous pressures he found that following the intravenous administration of considerable amounts of saline solution the venous pressure rises rapidly to undue heights when the circulation is impaired, but not at all when the circulatory function is intact, even though advanced pulmonary disease may be present.

This points the way to the indications for cardiac and circulatory stimulation for which digitalis is the most valuable agent.

Incidentally, the Caughey test may determine also the indications or contraindications for the use of saline infusions or blood transfusions in many conditions, especially in the postoperative period, and it explains the bad effects of such measures in many cases due to circulatory failure which does not allow the utilization of added fluids, but raises the venous pressure to even dangerous levels.

Of course, in these cases of circulatory failure there is usually also disturbance of gas exchange, so that the use of O_2 and bed rest is indicated in addition to circulatory stimulation.

Mechanical and Surgical Measures.—The modern treatment of chronic pulmonary tuberculosis has been revolutionized by so-called collapse therapy, which includes artificial pneumothorax and other more radical surgical procedures. The success of these measures in tuberculosis has led to their application to other pulmonary diseases such as lung abscess, bronchiectasis and lobar pneumonia.

It must be remembered, however, that these collapse measures tend to lock up the infection and while very successful in tuberculosis, they are usually quite the reverse in diseases associated with acute bacterial infection. Such diseases as chronic lung abscess and bronchiectasis call for either drainage or extirpation of the diseased area, and such measures as artificial pneumothorax, phrenicectomy and thoracoplasty are in general contraindicated in this type of disease.

We as internists are greatly in the debt of the surgeons for the great development of thoracic surgery, but it is important to realize the principles underlying the behavior of the different types of infection and thus avoid disappointment or even disaster which may follow the application of wrong surgical procedures in individual cases. The highest degree of success has

been obtained only when there is a close cooperation between surgeons and internists in the selection of cases, in the decision of the suitable type of operation and in the follow-up treatment. The application of preoperative functional tests is of great value in these preliminary studies.

In general it may be said that not the least of the advantages which have accrued from the development of thoracic surgery is a quickening of the increased interest in this class of cases on the part of both internists and surgeons.

Psychological Factors.—Finally, in our consideration of chronic pulmonary disease I wish to emphasize an important element which it has in common with all other chronic diseases and which is too frequently neglected. I refer to the psychological problems involved.

Every effort should of course be made to reduce all medical problems as far as possible to the realm of demonstrable facts. But there still remains an art as well as a science of medicine, and in the practice of this art it is often the personal intangible factors not susceptible of scientific analysis which are important.

Any patient with chronic disease faces a great psychological and emotional problem as well as a physical one, and too often physicians fail to appreciate this fact.

In the last analysis this is perhaps a question of personality. Some of us may be fortunate and possess it as a gift, but with most of us it has to be developed consciously and sometimes with considerable effort. If its value is not even recognized, then the possibility of its development is hopeless. But who of us has not known the thrill of satisfaction which has attended the successful outcome of a long, difficult struggle with these intangibles which has finally enabled our patient to come through master of himself and of his fate even though life itself may have been lost?

The existence of innnumerable cults stressing the mental, psychological and emotional factors in the treatment of disease is the direct response to the need of these patients and constitutes a direct challenge to our profession more adequately to meet this need, which is nowhere greater than in chronic pulmonary disease.

Very early in my medical career it was my great privilege to come closely under the influence of a great master in the field of chronic pulmonary disease, Dr. Edward Livingston Trudeau.

Dr. Trudeau's life is notable in the annals of American medicine. Struggling constantly with his own chronic disease, he acquired the strength to overcome it and also the ability to give to thousands of his patients the inspiration of his extraordinary personality.

Most appropriately, the beautiful monument erected to his memory upon the grounds of the Adirondack Sanatorium which bears his name, records the motto after which his whole professional life was patterned, and I suggest that we may well make it also our own.

It is in French, the language of his forefathers:

"Guérir quelquefois,
Soulager souvent,
Consoler toujours."

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CANCER OF THE KIDNEY*

WITH REPORT OF CASES

By B. Weems Turner, M.D.,
Houston, Texas

When one considers the many pitfalls in urological diagnosis in this era of so-called advanced knowledge, aided by our modern methods, newer pyelographic media and most excellent radiographers, one is prone to grow either skeptical or more assured. I believe that, with our present day conception of the subject, we should all be more positive and make our diagnoses with a greater degree of accuracy.

The early diagnosis of malignant tumors of the kidney is often difficult, but upon its accomplishment depends the possibility of recovery. The factors of error in diagnosis are reduced to a minimum through improved pyelographic media, closer coordination between radiographer, pathologist and urologist, and, lastly, better dissemination of knowledge to our patients and to the family physician, warning them not to ignore blood in the urine. The symptoms of blood in the urine, pain, palpable mass in the kidney region, and the fourth factor of a characteristic distortion of the renal pelvis, should, with any three of the symptoms present, demand surgical intervention, and when all are present,

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*From the Turner Urological Institute.

almost preclude an error in diagnosis of malignancy of the kidney.

The roentgenologic technic needs no elaboration, except for the statement that it is advisable to make a general survey of the genito-urinary tract and bones preliminary to urologic examination for the detection of calculi and the size, shape and position of the kidneys and other abdominal viscera, which information is of advantage before cystoscopic diagnostic study is undertaken. The retrograde method of pyelography is always employed unless contraindicated. The intravenous, or excretory, method is invariably used as a preliminary study and is never relied upon exclusively. The segregated dye test and careful urinalysis often reveal valuable information.

Upon a careful and detailed study of the pyelogram, by whatever method produced, depends the strength of the contribution of roentgenology to this subject. The proper interpretation of the normal and abnormal changes in the pyelo-ureterogram reveals the points to be considered in pathologic processes. The terms commonly used in describing the various deformities are: "filling defect," "elongation," "cupping," "clubbing," "mottling," "irregularity," "moth eaten," "compression," "distortion" and "sacculation." These designations, with their characteristic meanings, may be applied to the renal pelvis or to one or more of the calices, or even to the ureters, and in some cases to all of these combined. There are some pitfalls and errors in diagnostic measures to be considered. A filling defect, or an occlusion in the renal pelvis, calyx or ureter, should demand a repetition of the process, lest insufficient injection of the medium be thus misinterpreted.

The proper classification of kidney tumors is a much debated subject, but we shall, for simplicity, divide our group thus:

(1) Papillary adenocarcinoma (commonly called hypernephroma)

(2) Papillary epithelioma

The two groups cover the greatest number of malignant tumors of the kidney, and when one studies the elaborate description and classification given various kidney tumors by our most eminent pathologists, one soon finds himself in a state of confusion. We are agreeable with the classification and description as given by Wesson and Stowe.

(a) Papillary adenocarcinoma, commonly called hypernephroma, as described by them, is usually large, yellowish, soft, vascular, hemorrhagic or necrotic, cortical or medullary in location, not encapsulated, and more often single than multiple. It may contain cystic cavities from necrosis or hemorrhage, but is not primarily cystic. Histologically, it is composed of papillary strands of connective tissue, covered by large, very clear, cuboidal or cylindric epithelium. It quite clearly resembles the true hypernephroma, and has been classed with it in the past, but is probably derived from the renal collecting tubules and not from adrenal rests in the kidney. While it may extend through the lymphatics, it has an especially strong tendency to involve vessels; to grow through the renal vein and into the venae cava, and to produce distant blood-borne metastases in lung, liver and bone. A variant, with more granular cells, suggestive of convoluted tubule origin, is grossly less vascular, less hemorrhagic, more commonly multiple, and whiter in color than the clear-celled adenocarcinoma. Also, its spread is less likely to be by vein than by lymphatics, or by direct extension. The pyelogram to be expected in such cases is obvious: a compressed pelvis, with long, narrow major calices, distorted by a mass or masses exterior to the pelvis itself.

(b) Papillary epithelioma of the kidney pelvis is the contrasting papillary tumor of the kidney. This is the familiar bladder tumor of transitional epithelium, moved upward. It has the same precursory stage of benign papilloma; the same gross appearance of warty, usually multiple, friable outgrowths from the pelvic mucosa. As in the bladder, the higher and more vegetative the growth type, the less malignant and invasive the tumor. The low, or flat, types tend to be more anaplastic, more invasive and more malignant. Eventually, however, types that were originally relatively benign develop solid and invasive growth. Typically, these epithelial tumors push the kidney parenchyma ahead of them rather than grow into it. Extensions are not by vein, but by continuity transplants down the ureter, even to the bladder. Less frequently, lymphatic extensions occur. Eventually, when a high degree of malignancy is established, widespread metastases occur to adrenals, lungs, liver, peritoneum and bones. Hydronephrosis and back pressure changes in the kidney occur as the extending growth blocks the ureteral outflow. In either case, whether by hydronephrosis or by the mass itself, the pelvis is distended. The pyelogram shows a distended, enlarged pelvis, with a filling defect, and often an apparent absence of all calices.

STATISTICAL ANALYSIS OF 15 CASES

Table 1

SYMPTOMS, TYPE OF GROWTH, AND SEX

Symptoms and Signs	Number With	Number Negative	Papillary Adenocarcinoma	Papillary Epithelioma
Hematuria	12	1	8	4
Renal pain	8	5	6	2
Palpable mass	8	5	7	1
Distortion of renal pelvis (pyeloscopy)	13	0	9	4
Loss of weight	9	4	6	3
Male	8		6	2
Female	5		3	2

COMMENT

We wish to report briefly 13 cases observed by us and make no attempt to analyze the re-

ports of others. In our series of 13 cases, 4 were papillary epithelioma and 9 were reclassified as papillary adenocarcinoma.

Table 2
AGE INCIDENCE

	1 Year	2 Years	10-30 Years	40-50 Years	50-60 Years	60-70 Years	70-80 Years
Papillary epithelioma	0	0	0	2	1	1	
Papillary adenocarcinoma (hypernephroma)	1	1	0	4	2	0	1

Table 3
RESULTS

	Papillary Epithelioma	Papillary Adenocarcinoma
Operated	2	4
Inoperable	2	3
Exploratory	0	2
Metastasis	4	5
Alive after 2 years	1	2
Alive after 5 years	0	1

The various figures above are self-explanatory from the legends attached. The age incidence and historical data are particularly clear-cut, and, in our series, tend to prove that either the prognosis of papillary epithelioma is more grave, or that, in the more frequent absence of palpable mass, the lesion is diagnosed too late. In either instance, the four papillary epithelioma cases all had detectable metastases, and all died before a two-year period had expired.

TREATMENT

Nephrectomy is done in all cases where the general physical condition permits and metastasis has not been general. A single metastasis, located and accessible, should not be a contraindication to operation. In papillary epithelioma, where possible, and where the ureter is not too extensively involved, uretero-nephrectomy is advised.

In later years, x-ray therapy directed to the kidney, ureter and retroperitoneal glands, approximately thirty days before operation, has proven of advantage in prophylaxis of recurrence and extension of the growth. It has been proven that the best results are acquired by surgery in cases where the maximum x-ray treatment has been given, the time of election being when epithelialization of the malignant tissue is taking place, which is approximately thirty days later.

SUMMARY

(1) Never be content with less than a complete study of all cases of hematuria, and that immediately upon admission to your care.

(2) The differential diagnosis can invariably be made from the pyelograms. The adenocarcinoma gives a compressed pelvis, with long, narrow major calices, distorted by a mass outside the pelvis, while the epithelioma causes a distended, enlarged pelvis, in whole or in part, with an absence of some or all calices, and a filling defect, the tumor being in the pelvis.

(3) The adenocarcinoma commonly extends through the renal vein; the long, narrow calices are due to mechanical pressure of the paralleled branches of the renal vein, over-distended with thrombus and tumor tissue. This tumor is apparently quicker to demand medical attention from the patient and slower to metastasize, and the prognosis in our series has been better.

(4) The papillary epithelioma is of transitional epithelial type. It pushes the kidney ahead rather than grows into it, and metastasizes through the lymphatics or by transplants down the ureter to the bladder. The palpable mass is frequently absent in these cases and, as a result, even though they always have hemorrhage at intervals, they are more often diagnosed late, at a time when a higher degree of malignancy is present and metastasis is more certain.

(5) Trauma seems to play no part in the causation of kidney cancers.

(6) The later method of deep x-ray therapy before operation offers some additional hope in these cases and should be included in our treatment whenever possible.

CANCER OF THE GENITO-URINARY TRACT*

By C. E. BURFORD, M.D.,
St. Louis, Missouri

For the purpose of this paper it seems necessary to limit the discussion to cancer of the more commonly affected organs, which are the kidneys and bladder, in both sexes, and the prostate, penis and testicles in the male. Under the broad term of cancer will be included carcinoma, sarcoma and mixed tumors peculiar to these organs.

KIDNEY

More uniformity of opinion exists among urologists concerning diagnosis and treatment of malignant disease of the kidney than of any

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other portion of the genito-urinary tract, yet according to Hinman an early diagnosis is made but once in 20 cases. The first indication of the disease is hematuria in more than half the cases and if this single symptom were followed by a comprehensive urological examination the mortality would be materially reduced.

The embryonic type of neoplasm of the kidney occurs mostly in children under ten years of age and rarely causes hematuria as an early symptom, so that the presence of a tumor is the earliest diagnostic sign. All kidney tumors are essentially malignant and but one treatment is indicated, namely, nephrectomy. Because the capsule of the kidney acts as a barrier to the spread of tumor growth, the taking of a biopsy or the resection of the neoplasm is contraindicated except in case of a solitary kidney.

The embryonal or Wilms tumor in children is radiosensitive and can usually be much reduced in size by the roentgen ray before operation, but complete cure by this method alone is unknown. Metastasis is so common to all malignant kidney tumors that roentgen rays (films) should be made of lungs, shoulder girdle, long bones and pelvis as soon as the diagnosis is made. Not infrequently the metastatic growth is discovered before the original tumor in the kidney is suspected. According to Dean,[1] it is dangerous to irradiate hypernephroma. The blood vessels of the growth are so delicate that external irradiation has caused death from hemorrhage.

It is not uncommon to see for the first time a patient with a large hypernephroma with a history of intermittent hematuria for months or even a few years. If no metastasis can be demonstrated by the roentgen ray, one is justified in attempting nephrectomy, knowing the growth may extend into the renal vein or even the venae cavae; for we have had one patient with renal bleeding for five years before nephrectomy who lived nine years without recurrence.

Simple nephrectomy without extensive ureterectomy is sufficient for all malignant growths of the kidney except papillary carcinoma of the kidney pelvis which involves the ureter and its outlet in the bladder. It was pointed out by Hunt[2] that these cases require nephrectomy, ureterectomy and excision of the affected portion of the bladder at one sitting with the entire specimen intact.

BLADDER

Bladder tumors vary in their cellular pathology from the simple papillary epithelioma to the infiltrating carcinoma and sarcoma, but they are all potentially malignant and will destroy life if untreated. So frequently the biopsy report on a bladder papilloma is benign, but a section from its base or from the recurring growths will finally be carcinoma.

The experienced urologist can judge from the location and character of the tumor as to its degree of malignancy in the large per cent of cases. While the grading of a biopsy specimen should be given every consideration, the final judgment as to treatment should be based on the cystoscopic picture and the cystogram.

Painless hematuria is the outstanding symptom of early bladder neoplasm and persistent cystitis with reduced bladder capacity is the cardinal symptom for the infected tumors. Archie Dean[1] says: "We have never cured a case of papilloma or cancer of the bladder with external irradiation alone at the Memorial Hospital." The pedunculated tumor or papillary type is most effectively treated with fulguration through the cystoscope. If it does not yield readily or recurs, gold screened radon seeds should be implanted in its base immediately.

The tendency for papillomata to recur in distant parts of the bladder probably means a pathological mucosa rather than cell implantation from the original tumor. For this reason an open resection is contraindicated. The flat or infiltrating type of tumor does not yield to the electric spark, but is best treated in the absence of metastasis by the implantation of radon seeds. In the most favorable locations this may be done through the cystoscope, but a better view is afforded through the open bladder for estimating the extent and thickness of the tumor.

We have successfully resected transurethrally a few of these tumors located in or near the vesical neck and near the ureteral orifice. It is remarkable how accurate this method is with the bladder well distended. We were able to remove a portion of the muscular wall without perforation.

The technic for complete cystectomy has been much improved, with implantation of ureters in the skin or bowel by such men as Coffee, Smith, Higgins and others. This operation has not become popular on account of difficulties of technic and the low resistance of many patients with advanced malignant disease, but this should not stop its use by competent hands in selected cases.

It might be said that the recurrence of blad-

der tumors in general has been reduced since the publication of the papers by Beer[3] and Keyes[4] from 75 per cent following excision and snaring to 27 per cent recurrence following modern use of fulguration, excision and irradiation.

PROSTATE

Young[5] estimated that 20 of every 100 men over 60 years of age will have symptoms of prostatism and 4 of the 20 will have carcinoma. In other words, 4 men in every 100 who live to be 60 years of age will have cancer of the prostate. Carcinoma comprises 98 per cent and sarcoma 1.5 per cent and other rare forms 0.5 per cent of the malignant tumors of the prostate.[6] They spread by the blood stream with a predilection for the pelvic bones and spine, and by the lymphatics to the pelvic and abdominal lymph nodes so that leg pains or swelling of the ankles in any old man with good circulation should direct attention to the prostate.

Early symptoms are lacking. The first indication of the tumor is usually dysuria or obstruction. Metastasis of the lungs or bones may be found before the lesion in the prostate is suspected. The earlier physical diagnoses are made by rectal palpation in combination with the cystoscopic appearance of the prostatic urethra, vesical neck and trigone of the bladder. The only condition which simulates the woody hardiness of cancerous areas in the prostate are fibrosed patches, the result of chronic suppuration.

Prostatic stones are somewhat movable.

Ferguson[7] divides carcinomas of the prostate into three groups: (A) occurring in patients over 65 years, most frequently associated with hypertrophy and least malignant; (B) occurring in patients 56 to 65 with more metastasis, more pain and more malignant; (C) occurring in patients under 55, with most pain and most metastasis and most malignant.

Randall[8] has shown that carcinoma may originate in any portion of the prostate gland. Those cases with co-existing hypertrophy and carcinoma are the most difficult of diagnosis and most frequently overlooked. Biopsy specimens are often necessary for differential diagnosis.

By routine microscopic examination of all removed prostates and all resected material we will be able to find carcinoma in unsuspected cases in time to use radium in this class which gives us the highest per cent of cures in this most prevalent disease. Those cases that show no metastasis at the time of diagnosis are usually of slow growth, continue to extend locally, and may never metastasize to distant areas. In this particular class of patients, following partial or total prostatectomy and use of radium and roentgen ray, we seem to have a few cures over a ten-year period. Our best results have been secured by the use of radium element in the prostatic bed after prostatectomy and by the use of radon seeds implanted into the prostate through the suprapubic wound followed by roentgen rays.

The more malignant types with early metastasis offer little hope of cure, but require irradiation for relief of pain and transurethral resection or supra-cystotomy for obstruction.

TESTICLE

There has been much discussion and controversy concerning the types of malignant tumors of the testicle commonly called teratoma, carcinoma, sarcoma and seminoma. They metastasize early by the lymphatics and also by the blood stream.

The diagnosis until recently was made by exclusion. The finding of the gonadotropic hormone in the urine is the modern means of making the diagnosis.

According to the work of Barringer, Dean and Ferguson,[9] it makes little difference whether castration is performed or not if irradiation is carried out over the testis and retroperitoneal glands up to the diaphragm. This has been most successfully done by the radium packs and the Coutard technic with the x-ray. By this technic Dean[1] reports changing the old mortality rate of 85 per cent by the best surgical methods to about 85 per cent of from 5 to 13-year cures. This seems to be the most notable advance that has been made in the treatment of cancer of the genito-urinary tract.

PENIS

Epithelioma of the penis is rather typical and a probable diagnosis is easily made, but this should always be proven or disproven by a biopsy. All cancers of the penis are radioresistant; a few of the more superficial lesions have been successfully treated with radon, but amputation 1.5 cm. beyond the margin of the disease is the recognized treatment. The inguinal lymph nodes are usually enlarged, but may be so because of infection in the growth. For this reason delay in operating upon the lymph nodes is good surgery and should be preceded by a biopsy.

In conclusion, it may be said that the out-

standing advances in combating urological cancer are:

(1) Earlier and more definite diagnosis of kidney neoplasms.

(2) The more successful handling of bladder tumors by use of fulguration and the radon seeds.

(3) The enormous improvement of the treatment of teratoma testes and metastases by the Coutard technic with the roentgen ray.

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958 Arcade Building

THE EVALUATION OF SERODIAGNOSTIC TEST FOR SYPHILIS*

By FRANCIS E. SENEAR, M.D.,
Chicago, Illinois,

HUGH S. CUMMING, M.D.,†
Washington, D. C.,

HENRY H. HAZEN, M.D.,
Washington, D. C.,

ARTHUR H. SANFORD, M.D.,
Rochester, Minnesota,

WALTER M. SIMPSON, M.D.,
Dayton, Ohio,
and
R. A. VONDERLEHR, M.D.,‡
Washington, D. C.

No less impressive than the changes which have taken place in the therapeutic management of syphilis since the introduction of the use of arsenicals are the developments in the laboratory diagnosis of the disease. Three years after Shaudinn's demonstration, in 1905, of the Treponema pallidum as the etiologic agent, Wassermann, Neisser and Bruck applied the serum hemolysis principle previously described by Bordet to the serodiagnosis of syphilis.

In the following years many modifications of the Wassermann reaction were developed in an attempt to increase the sensitivity and specificity of the test, and each of these had its adherents. The first of the simplified procedures which depend on flocculation or precipitation was introduced in 1911. Within a short time many tests of this type had been developed, some being read by direct vision, others by various photometric devices, and others by the microscope. So many varieties of serodiagnostic procedures have been described that Vaurs[1] states that Demanche in the treatise on syphilis by Jeanselme describes sixty-odd technics of serum examination for the diagnosis of syphilis and apologizes for his lack of completeness.

This multiplicity of available methods, each with adherents supporting its originator's bid for recognition, made apparent the need for an attempt to evaluate the various procedures. Individual efforts in this direction are unsatisfactory. As Kahn[2] says:

> "Authors of methods are no less human than others, and they are likely to magnify the merits of their respective methods. The result is that clinicians will often hear diametrically opposed views as to the value of a given method, making it difficult for them to decide on the method of choice."

Mugrage[3] calls attention to another source of discrepancy when he states that many of the published reports evaluate other tests in terms of a favorite procedure; that this is naturally true of reports by the originators of the different tests, and by their expert assistants, as both have developed a surpassing technic in the procedure in which they are particulary interested. Unanimity is also rendered less possible by the differences of opinion as to the relative values to be given to sensitivity and specificity in determining the comparative value of different tests.

A study of a number of the numerous reports in the literature reveals the lack of conclusiveness in such individual studies. It is difficult to compare the results of such studies, since the comparisons may involve from two to eight or more methods. Moreover, they may involve series in which the syphilitic and non-syphilitic subjects are carefully selected, so that a higher proportion of positive reactions for any test is indicative of greater sensitivity, or may deal with

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†Surgeon General, U. S. Public Health Service, Washington, D. C.

‡Assistant Surgeon General, U. S. Public Health Service, Washington, D. C.

less carefully analyzed material, where the element of falsely positive reactions might account for at least part of an apparently greater sensitivity. Again in some articles the cases of syphilis tested are classified according to the stage of the disease, while in others they are not so divided. The discrepancies in such reports may be slight or great, as the following illustrations will demonstrate. Comparing two reports, we find that in the one test A is credited with having a 14.2 per cent advantage in sensitivity over test B, while in the other the favorable balance is only 3.0 per cent, a difference of approximately 11 per cent. Examining a group of three articles in which test C is compared with test D, we find the former credited with greater sensitivity of 3.7 per cent, 3.6 per cent, and 5.7 per cent, an unusually close agreement in results. With regard to the percentage of falsely positive reactions, always an important consideration, we find that with one method it was reported in one article that the percentage was practically zero, while in a second investigation it was found to be 2.5 per cent, while two other articles did not state the percentage, but it was said that the proportion of false positives was higher than with several other methods used in the comparison. Bearing out the observations of Kahn and Mugrage cited above, it is to be noted that the greatest variations usually occur between the results obtained by the originator of a method when he compares the findings with his tests and with other methods, and those obtained with the same tests when carried out in another laboratory.

Recognition of the desirability of some plan for more satisfactory evaluation of serodiagnostic methods for syphilis resulted in the first of the laboratory conferences under the auspices of the Health Organization of the League of Nations. This was held in Copenhagen[4] in 1923. As several of the methods then employed had been improved considerably, and as a number of new tests had been proposed, especially in the group of flocculation tests, numerous requests led to the holding of a second conference in Copenhagen in 1928. In this conference there were seven participants who used some form of the Wassermann test, including two who used the original technic, and eight who employed flocculation tests, Kahn (2 participants), Meinicke, Müller, Murata, Sachs-Georgi (2 methods), modified sigma and Vernes syphilimetric method. Kahn was the only participant representing the United States. The sera were obtained from Copenhagen, Hamburg, Berlin, London, Vienna, and Paris, and at the time of testing varied from fresh sera to specimens three to nine days old. All of the specimens were examined in Copenhagen by the various participants. A total of 944 sera were tested, 502 of these being from cases of syphilis in all stages of the disease, and including both treated and untreated cases; 435 were secured from patients with various disease, including cancer, scarlet fever, gonorrhea and pregnancy, but with no clinical signs of syphilis. The conference did not purport to recommend any special method, realizing that the choice of method or methods must depend on various considerations, especially with regard to sensitivity and specificity, local conditions, time required and cost. With regard to sensitivity, the various methods showed in cases of known syphilis a percentage of positive results ranging from 63.5 down to 28.2. Müller's clotting test had the highest percentage, while Kahn's test performed by himself, had a percentage of 61.1 and the same test performed by Boas ranked third with 58.5 per cent. The Wassermann modification performed by de Blasi was least sensitive, with only 28.2 per cent, and the Vernes syphilimetric test was next above it with 38.4 per cent. The average of the various flocculation procedures for sensitivity was 51.8 per cent and that of the complement-fixation methods was 44.3 per cent. Consideration of the various tests with regard to specificity is also important. There were five methods which gave no falsely positive reactions, but of these only the Kahn test ranked higher than eighth in sensitivity, while Müller's test, highest in sensitivity, gave 0.2 per cent of non-specific positive reactions. With the Kahn test performed by Boas, there were 0.7 per cent of such results. Furthermore, in the non-syphilitic group, the Kahn test performed by Kahn gave 1.12 per cent of doubtful reactions. The Kahn (Boas) 1.38 per cent and the Müller 2.31 per cent. The average of falsely positive reactions with the flocculation methods was 0.6 per cent and with the Wassermann test and its modifications 3.9 per cent.

In its report the conference committee recommended that at least two different serodiagnostic tests be used, and that it appeared to be preferable that one should be a complement-fixation method.

In 1930, the third laboratory conference of the Health Organization of the League of Nations was held at Montevideo, Uraguay. In this conference there were seven participants using some form of the Wassermann reaction,

and four employing flocculation tests (Kahn standard and presumptive, Meinicke, Müller, Prunell). Here most of the specimens were distributed within 24 to 36 hours after being withdrawn. Nine hundred and sixty-six sera were examined, of which 304 were taken from patients in whom neither detailed clinical examination nor serodiagnosis had given any grounds for assuming the existence of syphilis. There were 623 sera obtained from patients with syphilis in various stages of the disease, and 20 from patients with leprosy with no indication of syphilis in the clinical examination or history. In this conference, the sensitivity of the various tests ranged from 75.6 per cent to 45.4 per cent. The Kahn presumptive test had the highest percentage, while Müller's clotting test ranked second with 69.3 per cent and the Kahn standard test third with 63.9 per cent. From the standpoint of specificity four tests gave no falsely positive results, these being the Kahn standard and three of the complement-fixation technics. The Müller method had 0.7 of nonspecific positive reactions. The average of sensitivity for the five flocculation procedures was 64.7 per cent and that of the seven complement-fixation tests 54.4. With regard to specificity the average for the flocculation group was 1.7 per cent and for the complement-fixation 3.77 per cent, although the marked disparity in these averages in favor of the flocculation tests is mainly due to the poor showing of one complement-fixation method, which gave 13.9 per cent of falsely positive reactions. Summarizing the results of the two conferences, 14 complement-fixation tests gave 198 false positives, while the 12 flocculation tests gave 46 false positives.

With regard to consistency of results, it may be of interest to compare the results at the second and third conferences in the case of the four tests which were carried out at both, as shown in the following table:

	Copenhagen		Montevideo	
	Sensitivity	Specificity	Sensitivity	Specificity
Müller	63.5	99.8	69.3	99.3
Kahn (standard)	61.1	100.0	63.9	100.0
Meinicke	49.0	97.9	62.2	97.6
Wyler	41.8	100.0	54.4	100.0

In the report of the Montevideo conference it was stated that the majority of the participants agreed that, in the hands of Kahn himself, the Kahn "standard" test was the best of those demonstrated at the conference. As was also the case at the Copenhagen conference, the Kahn standard test proved to be absolutely specific and extremely sensitive. Müllers clotting test (modification II) and Kahn's presumptive test (the latter being specially designed as a guide to the therapeutic control of syphilis) both gave a greater number of positive reactions with syphilitic material than did the Kahn "standard" test, but also gave two and three non-specific positive reactions, respectively. Three out of the seven complement-fixation methods gave absolutely specific results, but a smaller number of positive results than did the flocculation methods, while other modifications of the Wassermann reaction, without giving particularly senstive results with syphilitic material, gave from 6 to 13.9 per cent of non-specific positive reactions.

These conferences have been of great value in furnishing us with information regarding the comparative value of some of the serodiagnostic measures, but since the time of the last conference a number of new methods have come to the fore, particularly in the United States. Furthermore, some of the earlier American tests were not represented at the conferences. In view of the multiplicity of tests in use in this country the American Society of Clinical Pathologists recommended to the Surgeon General of the United States Public Health Service that there be undertaken an evaluation of serodiagnostic tests for syphilis in the United States. Under the auspices of the United States Public Health Service a committee was formed, consisting of two officers of the United States Public Health Service, two clinical pathologists, and two syphilologists. A general invitation was extended to serologists in this country who had described an original serologic test or a modification of a pre-existing test for syphilis. After consultation with the participating serologists, a plan of procedure was developed, the details of which are available.[7]

The plan in this study differed from that of the conference of the League of Nations in one important respect. The report of the conference at Montevideo stated that some account must be taken of the fact that the results were obtained against time and in a strange laboratory, where conditions are frequently not so favorable as those in which the work is usually carried on in the serologist's own laboratory. In the present study the sera were sent to each of the participants, who was able to test them in his own laboratory, in most instances probably along with his routine serological work. In other respects, however, the procedure followed in the main that of the League of Nations conferences, since uniformity in such investigations is highly desirable.

It was decided that no participant who had described or who used more than one test would be permitted to report his results on the basis of more than one test, since it was felt that in this study the attempt should be limited to the evaluation of single tests rather than of more than one test or system. Serologists who had described more than one test were allowed participation for both tests, provided that the second test was performed in a separate laboratory by some one designated by the originator.

In view of the various methods employed in the reporting of results with different tests and by different laboratories, and the impossibility of evaluating too finely graded results, participants were required to use only the terms positive, negative, or doubtful in their reports.

In such a study, one is confronted with the problem of deciding what credit will be given for a doubtful report with one method as compared with a positive report with another, in a case of syphilis, and what penalty should be assessed for a doubtful report in a non-syphilitic individual. Any figures which might be agreed upon for such a rating would be purely arbitrary. Since the opinions of the participating serologists were far from being in accord on this point, some seven different plans being recorded by those who expressed an opinion, it was decided to ignore the doubtful reports when determining percentages with regard to specificity and sensitivity of the various tests. The number of doubtful returns with each test for each class of sera examined is given in the report of results, however, and can be evaluated according to the individual desire of the readers.

There were thirteen participants in the serologic evaluation. Brem, Kolmer, Reudiger and Captain Williams (United States Army) performed complement-fixation tests, while Eagle, Hinton, Johns, Kahn, Kline, Kurtz (Kahn presumptive test), Lufkin and Rytz, Rein (Kline exclusion test) and Weiss performed flocculation tests.

In the study a total of 1,017 blood specimens and 220 spinal fluid specimens was furnished to each participant. A total of 14,238 comparable blood specimens and 2,860 comparable spinal fluid samples were collected, exclusive of those collected for retesting. This evaluation study was, therefore, based upon the testing of 17,098 samples, collected from 1,174 individuals. The specimens were collected in various parts of the country, and depending on the distance that they were to travel, were sent by ordinary special delivery or by special delivery air mail. The mailing schedule was so staggered that each participant received the specimens at approximately the same time and on an average of from 36 to 48 hours after collection.

Of the blood specimens, 415 were obtained from patients with syphilis and 152 were from normal, presumably non-syphilitic individuals. In the first group there were 43 untreated patients with primary syphilis, 65 untreated patients with early secondary syphilis in the eruptive stage, and 307 patients with late syphilis with varying amounts and kinds of treatment. The results of the examination of the sera from these patients furnished the basis for the determination of the relative sensitivity of the different tests. The sera from the group of normal, presumably non-syphilitic individuals were secured almost entirely from volunteers from a group of medical students, and since any of these who knew that they had syphilis would not be apt to volunteer, it was felt that this group furnished an unusually good measure of the specificity of the various methods of serodiagnosis.

With regard to sensitivity, this can be measured best by the results in the cases of untreated primary syphilis and those of late syphilis, either treated or untreated, as it is to be expected that in the cases of early secondary syphilis the results would be positive in almost every instance. This is borne out by the finding that among cases in the early secondary stage the sensitivity was 100 per cent with ten of the tests, and with two of the flocculation tests was 98.4 per cent, and in one 98.5 per cent. The percentage of positive reports in the sera of the group of syphilitic patients ranged from 88.2 to 65.8, as follows: Reudiger (88.2 per cent), Hinton and Kurtz (Kline presumptive) 86.6 per cent each, Rein (Kline exclusion) 85.4 per cent, Lufkin and Rytz (84.7 per cent), Eagle 84.1 per cent, Kahn (80.5 per cent), Kline (76.3 per cent), Kolmer (75.9 per cent), Brem (70.5 per cent), Weiss (69.4 per cent), Johns (69 per cent), Williams (65.8 per cent). The average in sensitivity of the nine flocculation tests was 80.3 per cent, and that of the complement-fixation methods 75.1 per cent.

With regard to specificity it was highly desirable that every precaution be taken to exclude the possibility of syphilis in any of the donors of blood in this group. Consequently these individuals were examined clinically and serologically re-examined when more than one positive or more than two doubtful results were reported on any one specimen.

In this portion of the evaluation a specificity

of 100 per cent was recorded with five tests: those of Brem, Kahn, Kline, Kolmer and Williams. Among the other, Johns and Kurtz (Kahn presumptive) gave 3.3 per cent of false positives; Eagle, 2 per cent; Lufkin and Ritz, 1.3 per cent; and Hinton, Rein (Kline exclusion), Reudiger and Weiss, 0.7 per cent. In this field the average non-specific positive reactions among the nine flocculation tests was 1.34 per cent, and among the four complement-fixation tests, 0.2 per cent.

As a special feature of the evaluation study, it was decided, as a check on the consistency of results, to submit to each serologist three specimens of blood taken from the same individual on the same day, but with a different serial number for each of the three specimens from different cases. Each participant was sent these specimens in triplicate from six syphilitic and four non-syphilitic individuals. The results for each serologist were entirely uniform in the group of syphilitic patients. In one case two serologists obtained a negative result and one a doubtful result in known syphilis, but their reports were uniform on all three samples, while in another case one participant reported a doubtful result on all three samples of blood from the same case. With the non-syphilitic group the results were nearly as uniform, although one serologist reported one positive and two doubtful results from the three specimens of identical blood. In one case in this group two of the participants reported positive results and one reported doubtful results, but the findings were identical on all three specimens. On re-examination of a single specimen, one serologist returned a negative report in place of the previous positive, one a doubtful report in place of the previous positive, and one a negative instead of a previously doubtful report.

Further special studies were carried on with blood specimens from presumably non-syphilitic patients suffering with diseases which have been felt to be capable of giving rise to non-specific positive serologic reactions for syphilis. These included specimens from patients with tuberculosis (53 cases), malignant neoplastic diseases (62 cases), fever, natural or induced (46 cases), malaria (36 cases), jaundice (51 cases), pregnancy (54 cases), and leprosy (50 cases). The number of cases and the proportion of positive reactions in these groups were too small to permit any conclusions as to the effect of the various diseases in the production of non-specific leprosy. In the case of malaria, the percentage reactions, with the exception of malaria and of positive reports ran from 8.6 to 20.6, but as these specimens were secured from a group of colored patients, the figures are probably much less significant than might appear.

With regard to leprosy, however, the results were surprising and striking. For years the effect of leprosy as a cause of non-specific positive reactions has been the subject of much discussion and many papers. According to Pineda and Roxas-Pineda,[8]

> "Leprosy has long been considered as pre-eminently the non-treponematous disease that yields a positive reaction. The majority of workers have affirmed this. A peculiar feature is that there are wide differences in the reports as to the frequency of positive reactions, the percentage varying from as low as 20 to practically 100. Comparatively recently the contrary view has been advanced, namely, that leprosy, uncomplicated, does not give rise to positive reactions. However, most of those interested in the subject are of the earlier impression."

Goodpasture,[9] in 1923, obtained positive serologic results in 8 (62 per cent) of 13 untreated cases of leprosy and in 11 (85 per cent) of 13 patients undergoing chaulmoogra treatment who were still clinically and bacteriologically positive for leprosy. In 16 cases that had become clinically and bacteriologically negative as a result of treatment, he found the reaction uniformly negative. It is his opinion, therefore, that a positive serological reaction in leprosy is due to infection with the bacillus of leprosy, and that the disappearance of the reaction is a specific phenomenon, associated with the clinical improvement and diminution in number of the acid-fast bacilli.

Pineda and Roxas-Pineda, on the other hand, examined 500 cases of leprosy, using the Kolmer test on all and another Wassermann technic on 300. They state that if the serological reaction is ever positive because of the serum changes essential to the leprosy itself, it certainly cannot be said to be so in the same sense that it is in syphilis and yaws. Most of their patients who gave positive Wassermann reactions also gave evidence of syphilis or yaws. Analysis of the group giving positive reactions without clinical evidence of syphilis or yaws convinced them that there are two reasons for such reactions: (1) unrecognized syphilis or yaws, or (2) lepra reaction (marked clinical reaction necessitating hospitalization).

Kolmer,[10] in 1923, reported the results of serum examination of 125 lepers presenting no evidence of syphilis. With his test, all reactions were negative, while with an old complement-fixation test nine, or 7.2 per cent, gave positive reactions. As a result of his study he concluded that a positive reaction with the Kolmer method in leprosy justifies the clinician in proceeding with antisyphilitic treatment without the mental reservation that he may be subjecting a leper to unnecessary or even harmful measures.

Lloyd, Muir and Mitra[11] approached the problem in a different manner. They reported in 1927 on 1,027 cases of leprosy in which 214 gave strongly positive and 107 moderately positive reactions, a total of 31.2 per cent. They subjected 109 of these patients with positive reactions to intensive antisyphilitic treatment. They stated that their investigations showed that the percentage of positive Wassermann reactions in mild types of leprosy was 15, no higher than the average syphilis rate. In 100 per cent of instances these reactions were abolished by arsenical treatment. Therefore, they concluded that the positive reactions were all due to co-existing syphilis. Where ordinary Wassermann technics were employed the percentage of reactions obtained in the more advanced stages of leprosy was much higher than the above, averaging 50 per cent or more. They stated that at least three-quarters of these positive reactions were due to syphilis, as evidenced by the effect of antisyphilitic treatment. Of the positively reacting cases unaffected by the arsenical treatment in the advanced cases, some were possibly not caused by syphilis, but in their opinion there is evidence in leprosy of a peculiar serum change which may lead to possible Wassermann-fast cases of syphilis in lepers.

Ahuja and Malli, in 1930, used both the Kahn and Wassermann tests in a series of 100 cases of leprosy and found absolute agreement in 90 per cent, with the Wassermann giving 27 positive, 9 doubtful, and 64 negative reactions, and the Kahn giving 32 positive, 6 doubtful, and 58 negative reactions. They state that the modern consensus of opinion is that unless a syphilitic infection is present in addition, a positive reaction is an exception rather than the rule.

In view of the markedly controversial character of this subject and particularly in view of the recent tendency on the part of experienced observers to incline toward the belief that non-specific positive reactions are not common in leprosy, it is astonishing to find that in this study the participating serologists reported from 42 to 76 per cent of positive reactions in the series of 50 cases in which syphilis was, insofar as is possible, excluded. These figures are particularly striking in view of the fact that the sera were obtained from a group of lepers in which the incidence would not be expected to be materially higher than in the adult population of this country as a whole.

In addition to the blood sera examinations, spinal fluid samples from 110 neurosyphilitic patients and from 110 non-syphilitic patients were examined by all the participating serologists with the exception of Hinton. That any given test does not necessarily rank equally sensitive when used for both blood and spinal fluid examination is disclosed by the fact that the tests which ranked 1 to 12 as regards sensitivity with blood specimens, ran 1-6-9-7-2-12-3-5-8-10-4 and 11 in the check as to sensitivity in spinal fluid examinations. The average of sensitivity in examining spinal fluid specimens for the complement-fixation tests was 87.65 per cent and that of the flocculation tests was 76.64 per cent. The discrepancy was not so marked between the better tests of each group, but the evidence would indicate that several of the flocculation tests, with their present technic, at least, are not so well adapted to the examination of spinal fluid specimens as to blood specimens.

With regard to specificity, five of the methods showed 100 per cent specificity, while the others ranged from 91.7 per cent to 99.1. Here the average specificity of the complement-fixation tests was 97.75 per cent and that of the flocculation tests was 98 per cent.

SUMMARY AND CONCLUSIONS

We have not attempted to select any one test or combination of tests, but rather have attempted to make available the comparative results obtained in the same groups of cases with the different methods. There has been much discussion regarding the comparative value of the complement-fixation and flocculation methods. Some writers have advocated abandonment of the complement-fixation test completely on the grounds that the newer flocculation procedures were more sensitive, took less time, and

were less expensive. It is for that reason that we have compared the two methods as to their average results in sensitivity and specificity in the League of Nations conferences and in the present evaluation study, but it is obvious that such averages are not a true expression of the outstanding methods in the one group as compared with the best of the other.

The previously published conclusions of the committee may be reviewed in part here in order to emphasize again our conception of the present situation in the serodiagnosis of syphilis.

"This study indicated relatively equal value to the clinician of efficient complement-fixation tests and efficient flocculation tests as applied to either blood or spinal fluid specimens. This study further reveals that while most flocculation tests are approximately equal in value to complement-fixation tests when applied to spinal fluid specimens, it is apparent that certain of the flocculation methods are relatively inadequate.

"The studies of the committee, based solely upon the information derived from the evaluation of these reports, showed that if two tests are to be performed it is immaterial whether two complement-fixation tests, two flocculation tests, or a combination of one flocculation test and one complement-fixation test are selected.

"As a secondary consideration in the choice of one or more tests for general use, due regard should be given to the cost, rapidity and ease of performance. No consideration was given to these factors in the evaluation project. Certain tests which may be performed rapidly on blood specimens appeared to yield results comparable to those obtained with tests requiring a longer period for their performance.

"There is some evidence that a properly performed, highly sensitive flocculation test might be used routinely for the purpose of excluding the likelihood of syphilis. If a negative result is obtained by such a method it is quite likely that it will be negative by any other method. If the test yields a positive result, it should be repeated and compared with one or more highly specific flocculation or complement-fixation test.

"The results of this study indicate that in spite of the difference in symbols that are customarily used in reporting the results of various tests, it is satisfactory to report results as merely positive, doubtful, or negative. The committee recommends this simple method of reporting qualitative results to all serologists. Its adoption should be of great help to the clinician."

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TREATMENT OF NEUROSYPHILIS*

By W. F. Lorenz, M.D.,†
Madison, Wisconsin

Treatment of neurosyphilis is largely a problem for the general practitioner. The insidious development of the disease, its vague manifestations, particularly in its incipiency, its prevalence, and the further fact that the large majority of cases are discovered in the course of a general physical examination, makes neurosyphilis a disease with which the general practitioner must be familiar, and if any large scale success is to be realized, he must undertake the treatment of this condition.

Neurosyphilis develops at any time from within a few months after the initial lesion to years later after a prolonged period of so-called latency. Estimates as to the number of cases of syphilis that show an invasion of the central nervous system vary widely. If one were to depend entirely upon clinical or symptomatic evidence, the frequency of invasion would be placed too low. Since the development of serology it has been found that central nervous invasion of syphilis is frequent; some claim it to be as high as 40 per cent. Many clinicians wisely insist upon cerebrospinal fluid examinations in every case of syphilis. Under some circumstances central nervous invasion must always be suspected. Certainly any case of known syphilis under adequate treatment that continues to show a strongly positive blood Wassermann or flocculation test should be punctured. The so-called "Wassermann-fast" cases are either neurosyphilis or cardiovascular syphilis.

Many patients are honestly unaware of their syphilitic infection. Owing to the lapse of time and the several years of good health intervening, they have forgotten the initial sore. Some, indeed, pass through an abbreviated first stage, may never have had medical attention and, owing to the self-limiting character of a chancre, are truly surprised and usually quite indignant at the mere suggestion of a syphilitic infection. All of which makes the diagnosis from symptomatic evidence alone more difficult. An added difficulty is the fact that frequently the signs and symptoms are fleeting and vague and also not particularly distressing. The subjective

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†Professor of Neuropsychiatry, University of Wisconsin School of Medicine.

complaints in neurosyphilis are misleading. Not infrequently friends and relatives are more aware of illness or impairment than the patient himself. His complaints, excepting cases of involvement of cranial nerves or some definite cortical focalization or posterior spinal root involvement with its severe pains and crises, excepting such, the complaints are largely neurasthenic in character. The patient therefore seeks or is sent to his family physician. But it is not only the general practitioner who meets neurosyphilis during its earliest manifestations. Very frequently indeed, owing to the cranial nerve involvement, these patients seek the specialist. In fact, neurosyphilis may manifest itself in such a variety of ways, is so general in its symptomatology or so sharply localized in some special function that every physician, general and specialist, must hold in mind its prevalence. Our first consideration is, therefore, what diagnostic procedures are readily within the realm of the average physician through which he is enabled to recognize the true character of the illness.

Were we to depend upon clinical evidence alone, that is, signs and symptoms, syphilis of the central nervous system would be a relatively rare diagnosis. Even in the hands of the expert neurologist it may be suspected, but not diagnosed without serologic examination. Experience in any large general hospital will confirm the opinion that most cases of neurosyphilis are discovered as the result of routine serological examinations made upon adult sick persons. Serologic tests bear the same relationship to neurosyphilis that blood sugar determination bears to the diagnosis and treatment of diabetes. Certainly no one would care to assume any responsibility or to treat or handle hypothyroidism without basal metabolism determinations. Examination of the serum in neurosyphilis makes even a greater contribution in that it not only establishes the diagnosis, but serves as a guide to therapy and, furthermore, through it one is able to evaluate the efficacy of whatever treatment is being given.

If the diagnosis of neurosyphilis is to be largely the job of the general practitioner, then I believe its successful treatment may also be left in his hands. The same means used to recognize the condition will give all the information necessary to select a course of treatment. There is nothing so peculiar or difficult in the treatment of neurosyphilis as to preclude its being carried out successfully by any reasonably well informed physician.

From a symptomatic standpoint the manifestations of neurosyphilis may stimulate any organic or functional disorder of the nervous system ranging from brain tumor to neurasthenia or no symptoms at all referable to the nervous system. If there are mental manifestations these may resemble almost any psychosis. It may simulate the excitement of manic depressive insanity or the profound dementia found late in dementia praecox. Not infrequently in acutely active cases the mental manifestations may be so severe as clinically to resemble meningitis or acute encephalitis. Particularly disconcerting are cases in which the manifestations are limited to abdominal viscera. It is in this group that laparotomies for tabetic crises are still being performed. In short, the general practitioner, and the neurologist as well, cannot depend solely upon signs and symptoms. He must call upon the laboratory for conclusive information.

We therefore approach our problem of treatment by assuming a serological service which is essential in the recognition of neurosyphilis. The procedures which have now stood the test of time are few in number and thoroughly standardized. Serum study in a clinical sense comprises a Wassermann or flocculation test of the blood, a Wassermann test of the cerebrospinal fluid, a cell count, an exceedingly valuable empirical test known as Lange's gold chloride test and a globulin estimation.

Excepting cases under treatment and those that have reached the stage of spontaneous inactivity, every case of neurosyphilis will be positive in some of these tests. Eighty-five to 90 per cent will give positive evidence in all of the tests mentioned. One can safely conclude that every active case of neurosyphilis not under specific treatment presents a pathologic cerebrospinal fluid.

With serological evidence at hand, our next step is to correlate these findings with the disease process. In other words, attempt from physical findings and laboratory evidence to define the nature and extent and location of the lesion. This analysis must be made. Only upon such complete evidence can a rational therapy be formulated. In general, it may be said that a very positive cerebrospinal fluid, that is, a relatively high cell count, in the neighborhood of 100 to 200, indicates not only acute activity, but also an extensive or widespread lesion in which the highly vascular pia is predominantly involved.

It must be held in mind that syphilis generally is a disease of the vascular system. In

the central nervous system the earliest lesions are in the neighborhood of blood vessels. The first phase in the pathological process is an inflammatory exudate into the perivascular spaces. This entire process is usually widespread, although sometimes localized on the cortical convexities or in the interpeduncular space at the base of the brain. At a later stage the lesions are much more diffusely spread throughout the deeper structures of the brain and cord.

When the lesion is largely meningeal and deeper cortical involvement has not yet taken place, the cerebrospinal fluid findings evidence this fact. When, on the other hand, the lesions are limited to the posterior roots and sensory columns as in tabes, the cerebrospinal fluid findings reveal this type of lesion and its limited extent. The fluid findings in the latter type are much less marked; much less positive than in the more widespread meningeal lesion already mentioned. In short, one can and must, from the clinical findings and serological evidence, differentiate a variety of syphilitic lesions within the central nervous system. The therapeutic attack will be influenced, in a great measure, by such an analysis.

Before discussing a therapeutic procedure which I believe can be readily carried out by any physician I wish to emphasize the fact that in the end every case should be viewed as a special situation. No routine therapy will work. Every therapeutic success will show an individual adjustment in either drug or dose or procedure. The method of treatment to be suggested should be looked upon as a generality; a point from which one may depart in order to meet the variety of conditions found in these cases. The therapy to be mentioned is simplified beyond what would be good practice. Upon the other hand, the treatment to be suggested can be safely used as an initial effort which in many cases, excepting for some minor adjustments, can be carried through to a complete arrest of the disease.

Within a few years after Ehrlich's contribution, arsphenamine, it was found that while this arsenical was very effective in early and general syphilis, it was ineffective in neurosyphilis. Indeed, some types were definitely aggravated by treatment with either arsphenamine or neoarsphenamine. As a consequence, it may be recalled that following this disappointment many investigators sought new remedies, new methods and a variety of procedures were introduced in the treatment of neurosyphilis. At Wisconsin we also undertook to develop new arsenicals and different approaches. Our work began in 1919 and, awaiting new drugs from the chemists associated with us, we employed compounds that were in the process of investigation by others. Thus, we received from the Rockefeller Institute of Medical Research several drugs, among which was one compound known as A-63. This had been synthesized by Jacobs and Heidelberger and studied pharmacologically by Brown and Pearce. There had also been some clinical investigations, but it was found to have only a limited value in the treatment of early and general syphilis, but to be effective in trypanosomiasis. My late associate, A. S. Loevenhart, and I went ahead and following some further pharmacological studies by Loevenhart, used this compound in neurosyphilis. Favorable reactions were rather promptly observed, but the results were not permanent. We then used mercury as an adjunct and found that the good results obtained with A-63 could be stabilized; in other words, permanent results were achieved. At the expiration of two years our observations were reported and the compound A-63 appears in literature as tryparsamide. Since 1922 this arsenical has been extensively used both in this country and abroad. The reports appearing from time to time have, without exception, confirmed our original observations. At the expiration of ten years an effort was made to collect data on the cases that had been restored to health. It was then found that whenever a case had been treated to the point of practically negative serum reactions the recovery was permanent. In suggesting this drug for use it can be said that it has long passed the experimental stage and its usefulness has been established by many different and critical investigators.

Tryparsamide is a white crystalline powder very soluble in water and chemically stable. It is a pentavelent arsenical, therefore, differing quite fundamentally in its constitution from the trivalent arsenicals such as arsphenamine. It is administered in an aqueous solution in doses ranging from 1 to 3 grams dissolved in from 3 to 10 c. c. of sterile distilled water. It is given by intravenous route. It is locally non-irritating and its administration is without untoward manifestations of any kind. The drug is on the market dispensed in sealed ampoules containing 2 or 3 grams. It is patented by the Rockefeller Institute and its commercial production is by sanction of the Institute.

The usual practice is to give 3 grams per week to an average sized individual. Twelve

such injections constitute a course of treatment. It is good practice to precede tryparsamide administration by two weeks of mercury either in the form of mercury salicylate, ¾ to 1 grain twice a week or two weeks of mercury inunction and then continue mercury during the course of tryparsamide. We give the salicylate by intramuscular route at intervals between the injections of tryparsamide. This initial course of treatment covers a period of approximately three months, following which we usually prescribe a period of six weeks without therapy, at the end of which time a complete serum examination is obtained. Then a second course similar to the first and a third and sometimes a fourth are required before the clinical and serological recovery is complete. Quite generally it will be found that clinical improvement and recovery precedes negative serum tests by many months. Sometimes a year or more of treatment is required before a case has been permanently arrested, as evidenced by a persistently negative serum.

The following case will illustrate departures that must be made from the plan of treatment outlined:

A young adult, aged between 30 and 40, was markedly tremulous, excitable, overactive, with rapid loss of weight and an extremely positive fluid, that is, high cell count ranging from 100 to 200 per cu. mm., high curve in the gold sol showing a series of "5's" in the syphilitic zone, the whole picture both clinically and serologically indicating great activity in the disease process. Such a case requires at least 3 grams every four days for 30 or more injections, including mercury as already mentioned. Upon the other hand, a tabetic type in a person of 50 years of age or with evidence of rather extensive involvement of the posterior roots and column with a negative blood, a relatively weak Wassermann of the fluid, with 15 or 20 cells and a rather mild gold sol reaction, may need not more than 2 grams every two weeks, but plenty of mercury and potassium iodide.

In both of these extremes, from a clinical and serological standpoint, requiring rather drastic treatment in the first instance and mild treatment in the second instance, an adjunct to drug therapy is indicated. This is in the nature of so-called spinal drainage. Removing 30 to 40 c. c. of cerebrospinal fluid every two weeks constitutes a so-called spinal drainage. These lumbar taps should be made within 24 hours after the drug has been administered.

Time does not permit more than a reference to malarial inoculation as therapy in neurosyphilis. Generally the type of patient in whom malaria is most effective is so psychotic as to require institutional or hospital care. Malaria is rarely indicated as an initial or first effort in the treatment of neurosyphilis without psychosis. It has been our experience that malarial inoculation is less hazardous, better borne and more effective if preceded by one or more courses of tryparsamide and mercury. Again, following the 15 to 18 chills and fever, it is highly desirable to continue treatment with tryparsamide and mercury. Fever therapy by other means such as the Ketterling hypertherm, electric apparatus, or water bath, is not so potent as malaria. Nevertheless, fever therapy by such physical means can sometimes be used as a substitute in cases showing considerable vascular sclerosis or myocardial degeneration. Incidentally, in such cases which are poor risks for malaria, tryparsamide can be used with absolute safety.

In any event, whatever drug or dose or method is used, the efficacy of the therapy can be checked from time to time by cerebrospinal fluid examinations. A drop in the cell count is significant and a good sign, although this change is rather easily obtained and is the first expression of successful therapy. The next significant change that can be used to evaluate the therapy is the Wassermann reaction. Improvement is indicated by requiring more and more fluid to produce a positive reaction. The gold sol curve flattens out. The extreme of maximum reaction usually denoted by the numeral "5" begins to disappear as successful treatment is carried on. Ultimately the fluid should react but slightly, that is, merely a few "1's" in the syphilitic zone. The gold sol curve will be the last to become negative, but changes toward betterment will register quite promptly if the treatment is adequate for a particular case. Therefore, it follows if no favorable changes are found in the fluid after six months of treatment a change must be made either in the form of more drug or some other drug, or a different therapeutic attack.

There is no justification for pessimism in the treatment of neurosyphilis. Even late cases, those well advanced with a psychosis and committed as insane, can be restored to health and practical efficiency in 40 per cent of unselected cases. Earlier forms of neurosyphilis, the type

usually discovered by accident in the course of some obscure illness, the most frequent form found in the hands of the general practitioner, the type of case formerly referred to as cerebral syphilis, offers an excellent prospect for complete cure, and by cure one here means that the syphilitic lesion is made permanently inactive and because of the small amount of parenchymatous damage, if any, the scar does not impair the person's efficiency or capacity. In short, he is restored to health. This can be accomplished by the treatment outlined in 75 per cent of all cases. The other 25 per cent may be more refractory to treatment and demand additional or other more drastic forms of therapy.

In using tryparsamide one caution must be observed. This drug, not unlike other arsenicals but more so than the trivalent arsphenamines, can be toxic to the retina. This is especially so if the optic nerve has already been damaged by syphilis. We therefore make it a practice to examine visual fields before using tryparsamide. If there is any narrowing of visual fields or if there is a widening of the blind spot and, further, if the case shows some tabetic symptoms in the nature of absent deep reflexes, ataxia, severe root pains or crises, tryparsamide must be used with caution. In such cases it is well to begin with a 2-gram dose and note particularly after the fourth or fifth injection any spontaneous complaints of disturbed vision. Subjective complaints occur before there is any observable change in the retina by ophthalmoscopic examination. With such subjective complaints of visual disturbance, constriction of visual fields can usually be demonstrated. If this occurs, the administration of tryparsamide must be stopped. Quite frequently, however, after a rest period of a month or six weeks it is possible to return to tryparsamide and have no further recurrence of visual disturbance. Not infrequently these cases are left with some narrowing of the visual fields, but no impairment in visual acuity, and happily, many are stabilized at that point. If these precautions are observed no permanent damage to the eye need be feared. As a matter of fact, untreated syphilis is a much more serious danger to vision than any antisyphilitic drug or therapy.

We have now enjoyed a long experience in the treatment of neurosyphilis and from that background we presume to state that every case of neurosyphilis, no matter how profound its manifestations, no matter how serious the psychosis, no matter how evident the dementia or dilapidation, it is wise to treat and persist in therapy for several years. Cases that at the outset seemed hopelessly advanced have responded favorably and this has occurred with such frequency that many of us now hesitate to diagnose a case as paresis if by paresis we mean a large diffuse degeneration of cortical neurons. Many cases that respond favorably to therapy will present all the cardinal manifestations of paresis. We must assume therefore that these are not all expressions of irreparable damage and therefore are not all cases of degeneration of parenchymatous tissue.

The number of paretics developing from any large community serves as a good index of, first, the incidence of syphilis; secondly, the success of discovering early neurosyphilis; and, third, the adequacy of treatment used after the disease has been established. Therefore, using paresis as an index of diagnosis and successful treatment of neurosyphilis, we have had an experience which proves the point that given facilities, physicians in general can and do treat neurosyphilis successfully.

In Wisconsin we have two state hospitals for the insane that serve the entire state excepting Milwaukee County, which has its own hospital for the insane. At the two state hospitals the admission of late neurosyphilis, largely paresis in this instance, has dropped over 65 per cent in the last fifteen years. In Milwaukee County the paretic rate has remained unchanged during this same period of time. From many sources we know that the rural incidence of syphilis has not declined. The automobile and other modern developments have made the rural sections merely suburbs of the larger centers. The only explanation for this great difference within a single state is the significant fact that the physicians in the State at large, that is, outside of Milwaukee County, have had over 50 per cent more spinal fluid examinations made in cases with a positive blood than the medical profession in the city of Milwaukee. The physicians who sought this serological information evidently discovered early neurosyphilis and quite evidently treated it successfully. This substantial reduction in the incidence of paresis admitted to the State hospitals is the result of treatment carried on by general practitioners throughout the State. It is one more accomplishment in the field of prevention that must be credited to the medical profession.

CONGENITAL MALFORMATION*

A STUDY OF MORE THAN 500 FAMILIES EACH HAVING AT LEAST ONE CONGENITALLY MALFORMED CHILD

By DOUGLAS P. MURPHY, M.D., F.A.C.S.,
Philadelphia, Pennsylvania

Introduction.—Much has been written concerning the anatomical variations that occur in congenitally malformed individuals, and methods for correcting certain of these defects have been described in great detail. On the other hand, little attention has been paid to the characteristics of the families into which such children have been born, and so this field of investigation is relatively untilled by searchers after new facts.

Brothers and sisters frequently resemble each other both in appearance and in action. Consequently, when a malformed child is born, it is quite common for the parents to inquire of the obstetrician what the chances are that any subsequent offspring also will be defective. A colleague of the author was asked this question after he had delivered a patient of a monster. He informed her that her chances of having another defective child were no greater than were those of any woman who had not given birth to such an offspring. Her next child again turned out to be a monster. This sequence of events, and its duplication in the experience of a second physician known to the author, led to the study upon which the present report is based.

MATERIALS AND METHODS

To quote from a previous publication,[1] the material forming the basis for the present analysis was secured in the following manner:

"There were found in the files of the Bureau of Vital Statistics, Department of Health of the State of Pennsylvania, 130,132 death certificates for stillborn and live born individuals who died in Philadelphia during the five years between January 1, 1929, and December 31, 1933. Each of these certificates was examined, and the data on those noting the existence of any congenital defect were transcribed to duplicate official forms; 1,476 such certificates were located.

"The deceased individual was considered to have possessed a defect under either of two conditions: (1) if the defect involved the surface of the body, or (2) if internal, if its presence had been disclosed by either operation or necropsy. Diagnoses not conforming to these requirements were considered as not verified and were excluded from further consideration. This reduced the total number of usable certificates to 890, or only 60 per cent of the original 1,476 certificates.

"An attempt was made to interview the mother of each of the 890 deceased individuals, the visits being made in the summer of 1934 by three fourth-year medical students. A complete reproductive history was secured from each mother who could be located. The group forms a consecutive series. The defective children all died within a given geographical area and in a given period of time."

DATA

Frequency of Congenital Malformations.—It is difficult to determine the frequency of congenital malformations in the general population for a number of reasons. In the first place, no satisfactory definition of a congenital malformation is possible. In the second place, malformations not involving the body surface may not be discovered. Furthermore, when malformations are discovered at birth, there is no law which requires that they be registered. At the death of a malformed individual, it is necessary to record the presence of a malformation only when the latter is either the chief cause, or a contributing cause, of the death. In spite of these limitations, death certificates offer the best source for figures dealing with the frequency of congenital malformations.

In the present study of 130,132 consecutive death certificates, 11.3 in each 1,000, recorded the presence of a malformation in the deceased.[2] Since only 60 per cent of these diagnoses were confirmed, according to the criteria given above, the corrected rate is 6.8 defect-bearing certificates per 1,000 of all death certificates.

There were 4.7 deaths associated with defects recorded for each 1,000 live births in Philadelphia for the same period of time. In other words, this is equivalent to 1 defect death in each 213 live births. In this conection, it is of interest to note that 90 per cent of the defective individuals forming the subject of the present report were either stillborn or died within a year of birth.

Race.—Congenital malformations occur more frequently in some races than in others. Figures resulting from the present study, and ones found in the United States Mortality Reports, emphasize this racial difference.

Deaths due to, or associated with, the presence of congenital malformations, in white persons in Philadelphia for the five-year period under investigation, occurred at the rate of 9.6

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*From the Department of Obstetrics and Gynecology and the Gynecean Hospital Institute, University of Pennsylvania.

of such deaths per 1,000 of all deaths of white people. Whereas, in the case of the negro population, the death rate associated with congenital malformations was only 5.2 per 1,000 of all negro deaths. In other words, the malformation death rate in whites was practically twice that which was observed in negroes.

In this connection it might be remarked that syphilis usually is considered to be nearly twice as common in negroes as in whites, and yet in blacks the frequency of malformations is found to be only one-half that seen in whites. This observation suggests that syphilis plays little or no role in the production of congenital malformations.

Figures from the United States Bureau of Census also show that negroes exhibit congenital malformations much less frequently than do whites, while the frequency of such defects in the yellow race lies between these two extremes.

Sex.—The sex of all congenitally malformed individuals was studied, and it was found that the defects affected males and females equally.

Birth Order.—The birth order of the defective offspring was compared with that of all normal offspring in the same families.[1] From this comparison it was found that the defects afflicted the first four children in families with practically equal frequency. From the fifth child onward, however, the incidence of malformations rose rapidly. For instance, the seventh child appeared to be malformed twice as frequently as did any of the first four offspring, and the ninth child was malformed three times as often as were the first four children.

Maternal Age.—The age of the mother at the time that her malformed child was born was also studied.[2] It was found that malformed children were born more often to older mothers than to younger ones. This observation was expected, in view of what was discovered with respect to birth order. The defective children appeared with about equal frequency between the maternal ages from 15 to 30 years. However, after the mother reached 40 years of age the frequency of malformed children became three times that which was observed during the period before 30 years of age.

Month of Conception.—Recently, a statement was made that the conception of congenitally malformed children was observed to occur with greater frequency in periods of bad weather than at times when the barometer was less variable.[3] The present study of the month of conception of more than 900 malformed offspring offered no evidence for the belief that the conception of defectives is related in any manner to weather conditions.

Reproduction Before and After Birth of Malformed Children.—In visiting the families with malformed children, and in questioning the mothers regarding the outcome of each pregnancy, it was observed that miscarriages and abortions appeared in close relation to the pregnancy which ended in the birth of the defective offspring. Statistical treatment of available data disclosed the fact that not only did the miscarriages and abortions tend to cluster about the pregnancy which ended in the birth of the malformed member of the family, but also the premature births and stillbirths. This analysis showed further that these disturbances took place most often in the pregnancy just preceding that which ended in the birth of the defective child and next most frequently in the one immediately following that of the defective child, and progressively less often as the pregnancies became removed from the defective child pregnancy.[2]

The practical application of this observation is that if a malformed child is to be born, it is more than likely to follow an abortion, a miscarriage, a stillbirth or a premature birth.

Frequency of Defects Among Siblings (Brothers and Sisters).—If parents of a congenitally malformed child have subsequent offspring, these later born children are more likely to be defective than are later born ones in families which have had no defective children. Available data indicate that this likelihood in the case of families having one malformed child is approximately 24 times greater than in families in the population at large.[2]

Type of Defect to Appear in a Second Malformed Child.—In a series of 40 families having two or more congenitally malformed children, the defect seen in the first child appeared in one of the subsequent defective children in 47 per cent of cases. Since a great variety of congenital malformations afflicted the individuals which formed our series, it is quite evident that the duplication of first defects in second children was extremely high. This observation suggests that when the mother of a defective child becomes pregnant subsequently, should the presence of a defect be suspected during the pregnancy, the chances are very great that the defect in the unborn child will be the same as that seen in the first malformed child. Such a sus-

picion in advance should aid in deciding just how the pregnancy and labor should be handled.

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THE EMOTIONAL FACTOR IN DISEASE*

By JAMES S. MCLESTER, M.D.,
Birmingham, Alabama

The patient consults the physician because he is uncomfortable or unhappy. His distress may be due to organic disease or it may come from a disturbance of function in a structurally intact organ, which last may be the result of a variety of causes. Among these, psychic and emotional disorders rank high, and it is of the patient whose distress is of this nature that I wish to speak.

In a practice that is designed to include the entire field of internal medicine I have been no little perturbed to witness in recent years a great increase in the proportion of thoroughly miserable patients whose discomforts and unhappiness appear to be of emotional origin. These patients can scarcely be called psychoneurotics, for in their nervous make-up they are characterized merely by a high sensitivity or a low threshold of physiologic response, or perhaps by both. In most instances they have already consulted a number of physicians; by some they have been treated as if they had genuine organic disease; by others after scant consideration they have been dismissed with the intimation that there is nothing the matter. In both instances the physician has been wrong. There is no recognizable organic disease, and there is indeed a great deal the matter. The unfortunate thing is that these unhappy people are in dire need of help. The object of this paper is to remind you that it is the function of the physician to provide this help.

Why does the patient react in this manner to the vicissitudes of life? Is it, as is commonly assumed by psychiatrists, the expression of an escape mechanism, an unconscious attempt to avoid an insurmountable barrier, to get away from an intolerable situation or to give vicarious expression to submerged memories or unfulfilled desires? Or, does the fault lie primarily in the stuff of which the patient is made? Is it that he is constructed of defective fabric and thus unable to function in a normal manner? I believe that the latter view is the correct one. These patients are born neurasthenics. They come into the world defective. I do not wish wholly to deny the causative influence of repressed emotions and unbearable situations. No doubt these are of influence, sometimes of great influence, but in the disabilities of the patients of whom I write it has not seemed to me that these factors play the dominating role sometimes ascribed them. Rather does it appear that the fault lies within the patient himself. Intimate association with these people and a long-continued sympathetic effort to understand their vagaries has convinced me that in the large majority of instances the underlying cause is not some fortuitous circumstance, but is to be found in the biologic fabric of which the patient is made.

The automobile tire that is made of defective fabric looks good and may for a time wear well, but eventually there comes a blow-out. It would be a mistake to place the entire blame upon the chance jar that precipitated the blow-out; the real fault lies in the fabric. Had this been good, however heavy within reason the jolt, there would have been no catastrophe. The same applies to the patient of whom I write; disaster comes, not because of the severity of the jolt, but because the material is defective. It must be admitted that in rare instances insurmountable obstacles and intolerable situations do play a part, but to the person of poise the identical obstacle would not be insurmountable, and the same situation would not be intolerable. He would not build up within himself this abnormal mechanism for escape, but would face the situation, unhappily perhaps, but without disaster.

Each of us conceivably has his breaking point, but, this is reached in the normal man only through a strain of exceeding severity, while to the patient under discussion catastrophe comes under the ordinary conditions of life because he is built of poor material. Wherein does this defect lie? Is it that the entire nervous mechanism is abnormally sensitive, more unstable? Does the fault lie in certain biochemical factors, in some obscure chemical change, or shift in physical chemistry? Or, can it be ascribed per-

*Read in General Clinical Session, Southern Medical Association, Twenty-Ninth Annual Meeting, St. Louis, Missouri, November 19-22, 1935.

haps to some subtle abnormality of endocrine function? As yet, there is no answer.

The complaints which these patients offer present nothing typical. They are manifold and can be related to almost any organ. Most often digestive disturbances form the chief complaint. Then follow in order of frequency a great variety of ailments, among which are manifold aches and pains. These discomforts may represent nothing more than heightened sensitivity which permits the patient to feel things of which the rest of us are not conscious. On the other hand, I am convinced that most often they are the expression of a genuine physical disturbance, such for example as abnormal motility of the stomach or intestine or altered cardiac rhythm. It must not be forgotten that the motor mechanism of the bowel is profoundly influenced by many circumstances, among the most disturbing of which are emotional factors. This applies particularly to the patients of whom I write. In such a patient we are often dealing with a person whose sensitivity is abnormally acute and upon whom in addition, because of his emotional instability, there are superimposed motor disturbances in the intestine or elsewhere. When we consider this combination of factors we get an idea of what the person suffers.

To the initiated the clinical picture presented by these patients is fairly characteristic. Although the individual complaint is seldom typical, there is much that is typical in the manner in which the complaints are offered. Their sequence, their time of appearance and their bizarre associations often present a general clinical picture that alone tells the story. A single complaint considered alone might be suggestive of organic disease, but when it is scrutinized as to time of appearance and in its relationship to other symptoms and to associated factors, then not infrequently it becomes clearly evident that the entire disturbance is of emotional origin.

The history must be well taken, and with infinite patience, for to the experienced observer it is often of extreme significance. Von Neusser, the great Viennese clinician, once said that a properly taken history should alone enable the physician to make the diagnosis. If this has been delegated to someone else, then the physician who is later to offer the advice must talk things over with the patient and in an unhurried conference get his point of view. The physician must envisage the patient's background, fathom the things that underlie his happiness or unhappiness and understand the way in which he reacts to the vicissitudes of life. The patient's facial expression, his attitude toward himself, his symptoms and his surroundings, and what he fails to relate, as well as what he tells, are all to the observant physician highly significant. Give the patient of whom I speak sufficient time and lend a sympathetic, attentive ear and he will usually reveal the true nature of his disability.

Notwithstanding the significance of the history, the examination must be thorough and undertaken without prejudice. There are two reasons why thoroughness is essential and why no appropriate diagnostic procedure should be omitted. First, because the emotionally unstable person does sometimes get sick; in spite of his emotional vagaries he may have myocardial disease or a peptic ulcer; and second, because a careful examination is often the best assurance to the patient that his complaints are receiving the full consideration to which he believes they are entitled. Without this assurance, little progress can be made.

How should these patients be treated? If the fault is a fundamental one dependent upon constitutional inadequacy what, if anything, can be done? A great deal can be done. It can be done best, however, by an appeal to the patient's reason, and this can be accomplished only by a physician who enjoys his confidence. This confidence in turn depends upon many things, notably upon the manner in which the physician approaches the patient and the genuine interest he feels in his disabilities. In this approach tact and great skill is required. These patients are deserving of sympathy, and the physician must feel sympathy. He should school himself to make up his mind slowly and whatever the first impression he should not express it prematurely. He must settle everything clearly in his own mind before speaking and then express himself in a way that will imbue confidence. A frank expression of doubt, where real doubt exists, is proper, but there must be no vacillation; for, to carry weight, the physician's advice must be given with assurance.

Hygienic measures are of some, though not of great value. The person with an irritable colon, such as many of these patients have, should be given a smooth type of diet with explicit directions as to its observance. In other instances constipation should be corrected by appropriate measures. If the patient's nutritive state has suffered through his dietary vagaries, this should be corrected by means of a liberal well rounded diet. Not infrequently, self-imposed dietary re-

strictions have resulted in lack of vitamin B, which in turn is responsible for lack of appetite and nervous indigestion. I know of nothing that corrects this in as happy a manner as liberal amounts of Brewer's yeast and liver extract. I have been highly gratified at times to see the rapid benefit that followed the taking of ground raw liver mixed in equal parts with tomato juice. The neurotic patient wants elaborate advice, not only as to diet, which should be given him in writing, but also as to rest, exercise, play and many other things. All of this should be supplied. Some of these patients, in order to sleep, or for other reason, get into the habit of taking considerable quantities of the barbiturates and other sedatives. This is bad and should be discontinued. On the other hand, a small quantity of such a drug given in the beginning to induce sleep or relaxation is sometimes advisable. As to the advisability of giving sedatives, each case must be tested individually and the good judgment of the physician must decide.

In all efforts at treatment it must be recognized at the outset that we cannot change the stuff of which the patient is made. We cannot change his nervous make-up any more than we can change the color of his eyes. But we can teach him to accept the nervous system he has and to adjust himself accordingly. He can learn to accommodate himself to the sensitiveness with which he is handicapped and to make the most of it in such a manner as in many cases to lead a fairly happy life.

The ability of the patient to see himself as the physician sees him will determine in large measure the outcome of treatment. He should be told the truth about himself, softened with sympathy and tact, but nonetheless, the truth. The nature of his discomfort should be explained to him. He should understand that his pain or discomfort is due not invariably to a heightened sensitiveness alone, but that there is oftentimes a real physical basis for his discomfort, and that this physical disorder is in turn merely an expression of the influence of his emotions upon a sensitive, unstable nervous system. He should be led to see that if these effects of his emotional vagaries give him concern or frighten him, then they will tend to become more frequent and grow worse, but that if he can learn to disregard them, if he can develop some semblance of a "don't care" feeling, then these pains and discomforts will become less severe, and perhaps in time disappear. The recognition of this is the keynote of treatment. All else is of minor importance.

A NEW ERA IN PUBLIC HEALTH*

By W. K. Sharp, Jr., M.D.,†
New Orleans, Louisiana

In reviewing ancient history we find that the relationship between the physician and patient was a private matter. If an individual became ill, and had the means, he employed a physician, and whatever happened between the two did not concern anybody else. Health and disease were considered a private matter of the individual, and the state did not think of interfering in this most intimate relationship. Epidemics were considered natural occurrences and the handiwork of God; one died or survived them and prayed for better times to come. The general tendency of the state was to interfere as little as possible in the individual's affairs.

The Greek physician in the Fifth Century B. C. had his code of ethics, the ancient craftsman his guild regulations, the soldier his code of chivalry, but they all were private concerns of definite groups of men.

Society has developed into a more and more complex organism. A great many functions which formerly were left to private initiative and common sense of the individual have become part of the administration. The citizens of a modern community had to assume a great many duties which had been unknown to them before. If we wanted to build a home, formerly, we could do it as it pleased us best. Today we are not free in this respect. We have to adapt ourselves to an altogether new idea. Usually we are told what to do according to regulations. We send our children to school whether we like it or not. We accept these regulations because we recognize the fact that they benefit not only the community but ourselves as well.

We now find ourselves in America not only in a new era but in an entirely "new deal" age. This era is most certainly distinguishable from the past in at least one respect. It is an era of social action in accordance with conscious social planning. We have discovered that our conditions and destinies can be more and more definitely controlled. Whether they are wisely controlled depends upon the nature of our ideals and upon the measures we take to perfect them. Surely there is no sounder ideal than that more than once expressed by President Roosevelt in

*Chairman's Address, Section on Public Health, Southern Medical Association, Twenty-Ninth Annual Meeting, St. Louis, Missouri, November 19-22, 1935.

†Acting Assistant Surgeon, U. S. Public Health Service.

the words: "The state's paramount concern should be the health of its people." There is no field of social effort in which greater success has been demonstrated than in certain aspects of curative and preventive medicine. I might also add that there is no direction in which there is greater promise of success than in public health and medical care.

At this point it is worth while to enumerate a few of the outstanding examples relative to some more recent developments in public health as it relates to states. Since the first full-time health unit in the United States was established in Yakima County, Washington, in 1911 by Dr. L. L. Lumsden, of the United States Public Health Service, considerable attention has been attracted to this type of health organization. In the spring of 1914[1] Dr. L. L. Lumsden, of the Public Health Service, began a special study of rural sanitation. The purpose of this study was, first, to ascertain in detail the sanitary conditions in the rural districts of the United States with particular reference to their bearing on the interstate spread of communicable diseases; second, to determine improved methods for the correction of insanitary conditions; and third, to determine to what extent in the average rural community of the United States persons with responsibility of citizenship would carry out indicated measures which are readily within their means, to correct insanitary conditions which have been clearly pointed out to them as a serious menace to the health and lives of themselves and their families.

There was no question about implanting the idea of sanitation in the minds of the public, since education of the public was essential to the solution of the public health problems. In each county, specific recommendations were made concerning the employment of whole-time county health officers trained in public health administration, because full-time county health organization offered then and now the best means of attaining an intensive educational campaign, not only for environmental sanitation, but for general public health measures.

It is interesting to note that about the time these surveys were made, state health departments, especially in those states where the surveys were conducted, were organized on a full-time basis with full-time state health officers in charge of the work.

In the report of the committee on public health organizations,[2] the average per capita appropriation of the legislatures of 41 states was 0.036 in 1915, but this amount had increased to 0.118 in forty-eight states in 1930, more than three times the amount in 1915. This rapid growth in funds for public health service by state groups to a certain extent dates back to the time of these original sanitary surveys in certain sections of the country, and points to two different conclusions: first, an increased sense of responsibility of government for public health protection; and second, an increased appreciation of the fundamental importance of the state government and the public health program.

Until recent years the public health service of many states had lagged behind the development of service with the larger municipalities, and in this connection we must remember that municipal health organizations historically antedate state health organizations.

Probably the most outstanding and impressive development of the last decade is the very definite trend to greater emphasis on the importance of high-grade technically trained public health workers. There is a greater demand for epidemiologists, laboratory workers, sanitary engineers and others. According to Chapin,[3] in 1915, only fourteen states appeared to have any specific legislative allotments for epidemiological service and communicable disease control service, while in 1930 the number had reached 31. Twenty states had specifically allotted funds to laboratory service in 1915, and the number increased to 42 in 1930. Sixteen states appear to have had sanitary engineering service organized in 1915, and in 1930 practically all states had service of this character organized, either under a special division or in relation to other departmental activity.

During our more recent national economic disturbance, all too many of our state health departments' appropriations were so drastically reduced that it has been almost a financial impossibility for them to operate. Salaries curtailed, efficient personnel discontinued and county health departments' efficiency practically destroyed, all of this occurring just as we were on the verge of entering into a new era in the public health field. Much time has been consumed; new programs quite necessarily will have to be made, old ones revived, new personnel selected and trained. However, the great American public has been exceedingly tolerant. It is believed that when the President of the

United States advocated and Congress passed the Social Security Act, although no funds have been provided for the execution of this Act to date, that they had in mind carrying to a logical conclusion the ideas of the President while serving as Governor of New York during 1932 that: "The success or failure of any government in the final analysis must be measured by the well-being of its citizens." Nothing can be more important to a state than its public health. The state's paramount concern should be the health of its people.

It is therefore squarely up to us as leaders in the public health movement to develop a program to meet the principles of the Social Security Act that is sound, logical and common sense in its final application.

(1) There is a need for thorough coordination between all Federal, state and local public health functions and activities. This will effect economy, prevent duplication of effort, and tend to produce harmony.

The Public Health Service plans definitely to cooperate to its maximum capacity in assisting state and local areas in developing reasonably adequate, sound, state and full-time county or district health departments. This cooperation will of necessity bring into the picture medical, nursing and engineering schools for training purposes, allotment of funds for special public health needs; consultant and advisory medical, nursing and engineering service and allotment of funds for the purpose of stabilizing state and local health work. However, it must be thoroughly understood that even though specific recommendations are made for financial aid from the Federal Government, a major portion of the financial support should be derived from state and local (cities, towns, counties and district) agencies.

(2) The training of necessary administrative and scientific personnel in the essential services, as vital statistics, sanitary engineering, laboratory and preventable diseases, so as to furnish definite leadership from the state health department which should render the largest possible field service at the smallest possible cost for administration, as, after all, a small, compact but highly trained central staff is needed for the purpose of furnishing expert consultant and advisory services for full-time local health departments, since they are not in the position to purchase this service themselves. The average county at the present time cannot furnish a full-time epidemiologist or sanitary engineer and very few can provide finances for a laboratory, whereas the state, seeing the situation as a whole, can provide the highly technical service.

(3) The setting up of standards of efficient administration and evaluation of results, as in uniformity of plan of procedure based upon a generalized, well balanced program to meet the needs of the particular area; uniformity in records, reports and necessary appraisal of results.

(4) Efficient use of Federal, state and local funds according to public health needs as determined by scientific and not political conditions.

In a group of states where tenure of office is more or less secure and appointments of state health officers are made for administrative and not political considerations, most certainly better results can be secured. Real public health programs can be executed and efficient, trained public health workers can be retained.

Alabama, with fifty-five full-time county health departments out of a possible sixty-seven, has had since 1875 only four state health officers; Kentucky, with eighty-odd units, only two state health officers, and Mississippi has developed a splendid program and now has its second state health officer. The same can be said of some other states.

Apparently state health officers selected by non-political boards are given a greater opportunity for real service. Therefore, it seems the most logical, advantageous and economical procedure to follow.

All of us are now faced with our greatest opportunity and responsibility. Surely with the new appropriation in sight from Congress, no true health worker will fail to get the spirit. Let us all go forward together to do more and better health work, with fresh inspiration, in carrying out this new program.

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SPONTANEOUS RECOVERY FROM PNEUMOCOCCUS MENINGITIS*

REPORT OF A CASE IN A NEWBORN INFANT

By SAMUEL F. RAVENEL, M.D.,
Greensboro, North Carolina

Within recent years a number of instances[1 2 3] have been recorded in which patients suffering with pneumococcus meningitis have recovered. Usually the implication obtained that recovery was due to some therapeutic procedure such as: (1) repeated lumbar or cisternal puncture; (2) intravenous, intrathecal or intracarotid injections of pneumococcus serum, optuchin, Pregl's solution of iodine, acriflavine, potassium permanganate, etc. The following case is reported to emphasize the fact that spontaneous recovery from this highly fatal disease may occur:

History.—A white female infant 12 days old was seen in consultation with Dr. I. K. Briggs, of South Boston, Virginia, March 19, 1935.

The family history was negative except that three other children were sick with measles. The infant was born spontaneously at term and for the first week was normal in every respect. She was breast fed.

On the eighth day she began to have high fever and generalized convulsions. The convulsions recurred at frequent intervals, the fever was continuous, the infant nursed poorly, and after the tenth day was drowsy.

Physical examination revealed a slightly cyanosed, well nourished female infant with temperature 104° F., an inflamed pharynx and the classical signs of acute meningitis. The ear drums were normal, the lungs clear, no Koplik's spots were present, and the conjunctivae were not injected.

Lumbar puncture yielded turbid spinal fluid with a cell count of 6,000 per cu. mm. Smears of this fluid stained by several observers with methylene blue, gentian violet and Gram's method all revealed numerous extra-cellular diplococci, some in short chains. Those stained by Gram's method retained the purple dye. In several of the preparations capsules could be seen surrounding the organisms. Cultures were not made.

Course.—A poor prognosis was given, chloral hydrate and bromides were prescribed for the convulsions, and the parents were directed to feed the infant breast milk with a spoon since she was unable to nurse.

As the family lived far in the country, nothing further was heard until seven days later, when the child was brought in. She had taken adequate amounts of water and milk and the convulsions were becoming less frequent and severe. Physical examination and spinal puncture showed essentially the same findings.

One week later she appeared to be much better, the convulsions were said to be quite infrequent, and study of the spinal fluid revealed 100 white cells per cubic millimeter and no organisms.

Three months after the onset of the illness she seemed to be normal subjectively and objectively. Lumbar puncture was not performed at this time.

COMMENT

Although exposed to measles at birth, she obviously did not suffer with that disease, since cough, conjunctivitis, Koplik's spots, and exanthem were lacking. Presumably the infection originated in the throat. At no time did the middle ear become visibly affected. This case emphasizes the difficulties of prognosis and the danger of post hoc reasoning as regards therapeutic procedures.

SUMMARY

A case of pneumococcus meningitis in a newborn infant is reported in which spontaneous recovery ensued.

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SOUTHERN MEDICAL ASSOCIATION
Thirtieth Annual Meeting
Baltimore, Maryland, November 17-20, 1936

FRED MURCHISON HODGES

THIRTIETH PRESIDENT OF THE SOUTHERN MEDICAL ASSOCIATION

A dynamic and winning personality widely and affectionately known throughout the Association's membership is the new President, Dr. Fred M. Hodges, of Richmond. His intense energy and signal ability are manifest in everything he approaches, from the speedboat with which he terrorizes the natives of a placid Virginia riverside to the profession in which he has mounted to the highest rank.

Dr. Hodges was born October 31, 1888, in Linden, North Carolina, the son of John Murchison and Sallie Worth McNeill Hodges. After his primary training in Linden school, he attended the University of Georgia for three years. Two years in the Medical College of Virginia were followed by two years at the University of Pennsylvania, from which he was graduated in 1910. An additional year was spent in special training in radiology with Holzknecht and Haudek, of Vienna, following which he settled in Richmond, for a short time in internal medicine and thereafter in his chosen field of radiology. With the outbreak of the World War he entered the service and became attached to the staff of Base Hospital No. 45, organized in Richmond. With the final rank of major, he was eventually placed in charge of radiology for the entire Justice Hospital Group at Toul, France, composed of a number of base hospitals with a combined capacity of about 10,000 beds. Resuming his private practice after the War, he became, and remains, radiologist at the St. Elizabeth Hospital, Stuart Circle Hospital, Grace Hospital, and the Retreat for the Sick, in Richmond. He was married in 1929 to Louise Meriwether Anderson, and they have two children.

He has been president of the Richmond Academy of Medicine, vice-president of the Southern Medical Association, Secretary and Chairman of the Sections on Radiology in the Southern Medical Association and the American Medical Association, and is now president of the American Roentgen Ray Society, his administration of which has evoked commendation from every section of the country.

In addition to his hospital connections, he maintains a private establishment, with an equipment recognized as one of the best in the United States. In the therapeutic application of the roentgen ray he has been a pioneer, especially in the treatment of acute infections. Though he is perhaps best known for his work on infections, his interest in the diagnostic and therapeutic applications of the x-ray is inclusive and he has made valuable contributions to all phases of medical roentgenology.

Along with his skill as a radiologist, he carries a general clinical training which equips him with an admirable sense of proportions. Those associated with him in his earlier years recall him as an internist of fine insight and judgment, and this clinical background vitalizes and distinguishes his radiologic work to a very striking degree.

He has a charming family and home, cultivates a beautiful flower garden, is a swimmer and a fisherman.

In the Army his work was so distinguished that, though particularly identified with Base Hospital No. 45, he was made chief of the entire service in the Toul center which, with the initiation of the movement of the American armies in the Lorraine section, became one of the hotbeds of France. The strain here was intense for a time. Only those who faced a storm of this sort can sufficiently understand and appreciate what the radiologist meant to the surgeon and the physician.

The path to this scene of his truly herculean labors in France led across the submarine-

strewn Atlantic ocean and provided for the future President of the Southern Medical Association another incident in a varied career. He was the senior, and consequently the commanding, captain in a group of seventeen American medical officers stowed away in an American-rented Chinese freighter bearing the name, Hwah Jah. The old tub was loaded with everything except food, and under the leadership of a hardened British skipper. It ploughed along for twenty days before it touched the other side. In mid-ocean a mutiny threatened among the medical officers and centered about the personality of an echinococcic pig offered by the skipper for a meal. But for the persuasive eloquence of Hodges, the commandant, irons might have adorned the wrists of a few rebellious doctors.

Such is a glimpse of the distinguished radiologist upon whom has been bestowed the highest honor in the gift of the Association. With great spirit, splendid ability, and unbounded energy, he approaches, one may be sure, an administration that will not only reflect further credit upon himself, but will be in fullest accord with its finest traditions.

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Role of Radiologist in Cancer Problem. Sou. Med. & Surg., **97**: 185, April, 1935.
President's Address, American Roentgen Ray Society, read at Atlantic City, N. J., Sept., 1935, to be published.

VITAMINS AND THE COMPLICATIONS OF PREGNANCY

In a paper in this issue of the JOURNAL, the seasonal incidence of several obstetrical complications is analyzed by Paddock,[1] of Washington University School of Medicine, St. Louis. Fetal malformations are said to occur more frequently in infants conceived in March and April than in other months. Infants conceived in July and August were relatively free from abnormalities, and such conditions as placenta previa, chorion-epithelioma and hydatid mole were least frequent in the midsummer conceptions. Among the disorders of late pregnancy, eclampsia occurred most often in the spring months, less commonly in the fall.

In considering the etiology of seasonally occurring, non-infectious disease, one thinks immediately of the varying food supply, and of possible vitamin and mineral deficiencies. The winter and early spring rations are for most persons less abundant and varied than the summer food. Good physical condition in the fall is perhaps dependent upon the full summer diet. Early spring menus may be low in vitamins not only by the obvious lack of green vegetables and fresh fruits upon the table, but indirectly because of changes in the content of meat and milk at this season. Animals slaughtered in the winter have lived upon a winter diet which may have depleted their tissues of reserve vitamins; and winter milk is usually from cows whose ration has contained little green stuffs.

Vitamin metabolism is difficult to study, and normal requirements for the human race are not established. The best that the pediatrician or obstetrician is usually able to do is to insist upon an abundance. Recently a chemical test for vitamin C has been developed, and some understanding of quantitative requirements for the human being has been attained.[2] From the normal standards tentatively accepted, it would appear that vitamin C deficiency is common. According to Corlette, Youmans, Akeroyd, and Frank,[3] of Vanderbilt University, vitamin C de-

1. Paddock, Richard: Seasonal Occurrence of Various Obstetrical Complications and Abnormalities. THE JOURNAL. This issue, p. 31.
2. Editorial, Vitamin C Requirements. THE JOURNAL, **28**:572, (June) 1935.
3. Corlette, Marvin; Youmans, John B.; Akeroyd, Joseph; and Frank, Helen: A Clinical Study of Vitamin C Excretion. THE JOURNAL. This issue, p. 37.

ficiency is frequently noted among members of the medical profession and among persons working in hospitals. From laboratory tests, it seemed to be present in more than half the individuals examined, although these partook of a diet probably better than that of the average American. The Nashville investigators have made an accurate study of vitamin excretion in several groups of subjects. They found that rather small amounts of vitamin C are stored in the tissues. After an individual has been "saturated" with C by ingesting large quantities of the vitamin, so that the tissues will not hold more, the store may be depleted by a short period without it. The C reserve of the individuals studied was greater in the fall than in the spring.

C deficiency, being seasonal, may be a contributing cause to a seasonal eclampsia or toxemia. It is of interest that C storage is inversely related to the incidence of the eclamptic syndrome, since eclampsia occurred most frequently in the early spring months in which C storage appears to be lowest.

Vitamin G deficiency is associated with pellagra. G metabolism is not capable of such quantitative analysis as is possible for vitamin C. Ross,[4] of Duke University, has noted that in North Carolina the incidence of pellagra and eclampsia parallel one another; that eclampsia occurs most frequently in persons from pellagrous districts.

Murphy,[5] of the University of Pennsylvania, who has studied a large series of fetal malformations, denies that there is any relationship between the month of conception and the number or type of fetal deformity. Malformations in his series were commonest in the offspring of older women, regardless of other factors.

Since in the diets of many Americans neither minerals nor vitamins are generously provided, the importance of adding these to the menu of the gravid woman has been stressed. Recent studies continue to emphasize the necessity of a generous supply of the accessory foods in pregnancy.

4. Ross, Robert A.: Relation of Vitamin Deficiency to the Toxemia of Pregnancy. THE JOURNAL, **28**:120, (Feby.) 1935.

5. Murphy, Douglas P.: Congenital Malformation: A Study of More Than 500 Families Each Having at Least One Congenitally Malformed Child. THE JOURNAL. This issue, p. 79.

GLEANINGS FROM RECENT JOURNALS

Diagnosis by Electricity.—Fifteen or more years ago, Abram's electronic method for diagnosis of disease was attracting favorable attention in such current magazines as Pearson's. The story, like Jules Verne's "Twenty Thousand Leagues Under the Sea," seems to have been in a faint way the precursor of a modern invention.

The well known Friedman pregnancy test depends upon the fact that certain biologicals induce ovulation in the rabbit. To detect a positive reaction, the rabbit's abdomen must be opened before injection, sewed up, and reopened a day or two later to examine the ovaries, all of which requires time and operative technic. An external sign of ovulation in the rabbit has been difficult to discover. The reaction is normally sudden and almost explosive in character, according to Burr, Hill and Allen,[1] of Yale University, and it seemed likely to these observers that a marked change in the electrical potential of the organism takes place with this rapid expenditure of energy. They have devised a potentiometer which they report to be capable of measuring electrical changes in the living organism. As the rabbit ovulates, they say, a sudden change in potential may be noted with their instrument, a peak corresponding with the rupture of each follicle. The number of follicles which mature and rupture thus, they say, may be detected in the intact rabbit.

If the work is confirmed, it should be of value in shortening the rabbit pregnancy test, and of course may be exceedingly useful in studies of function of the human ovary.

Liver in Anemia and Polycythemia.—Liver extract which is beneficial in pernicious anemia, according to well known University of Rochester workers,[2] may have no effect on secondary anemia from bleeding. Liver apparently contains several factors which are potent in stimulating blood formation, and not one but several of these are needed for blood building after hemorrhage, in which loss of all elements has apparently taken place.

In experimental polycythemia, according to Marshall,[3] of the University of Chicago, daily

1. Burr, H. S.; Hill, R. T.; and Allen, Edgar: Detection of Ovulation in the Intact Rabbit. Proc. Soc. Exper. Biol. and Med., **33**:109 (Oct.) 1935.

2. Robscheit-Robbins, F. S.; Walden, G. B.; and Whipple, G. H.: Blood Regeneration in Severe Anemia. Fractions of Kidney, Spleen, and Heart Compared with Standard Liver Fractions. Am. J. Physiol. **113**:466 (Oct.) 1935.

3. Marshall, L. H.: Anti-anemic Treatment in Experimental Polycythemia. Ibid., **114**:194 (Dec.) 1935.

injections of liver extract produced a prompt fall of the high erythrocyte count, first to below normal, with later a rise to the normal level. Extract of stomach mucosa brought about a more gradual decrease.

If liver contains material of benefit in blood dyscrasias of opposite types, with red cells too high as well as too low, one would be at first thought inclined to advocate a general and continuous use of it in the human dietary. Yet there was an older belief that eating liver was conducive to increase of uric acid in the blood, and to gout. The functions of the liver are very many. Along with the health-giving fractions, it is still possible that it contains a few toxic substances.

Tobacco and Laziness.—Following the report from a physiologist a few years ago that nicotine raised the blood sugar, tobacco advertising took on a new note. Certain cigarettes were described as giving a "lift" to the fatigued without fattening the obese, and cigarette ads since have had something in common with those for a popular tonic or an "eat and grow thin" treatment.

Tobacco is often believed harmful, yet no one is sure why, and it is used personally by nearly all physicians. A recent pharmacological study[1] deals with the changes in rats which receive daily injections of rather small quantities of nicotine. The animals were kept in cages with revolving drums, which recorded their spontaneous activity, or desire to run. The amount of nicotine administered was not sufficient to cause loss of body weight or to prevent growth. It was noted that the treated rats were quieter, and moved less in their cages. In normal female rats the spontaneous activity rises and falls rhythmically with the ovarian cycle. In nicotinized females the cyclic changes in activity continued, but at a lower level. After varying periods of nicotine administration, the rats were killed, the bodies analyzed, and it was found that the composition had changed. The tissues felt much less greasy, and looked less fatty, which appearance was borne out by chemical tests. The animals had not lost weight, but the water content had increased and the fat decreased. It would appear that the fat had been replaced by water. After nicotine injections were stopped the activity of the animals rose again to the pretreatment level and gradually the composition of the tissues was restored to its normal fat content. The investigators found that nicotine inhaled by the rats gave inconstant results; hence the medication through the skin.

The effect no doubt varies considerably with the amount given and the experimental animal. The rats seem definitely to have become a little sluggish, and their fat reserves to have been markedly altered by the drug. It would appear that tobacco is a sedative, rather than a stimulant, and that it is capable of producing pronounced metabolic changes.

1. Smith, C. S.; Rosejfeld, S., Jr.; and Sacks, L. J.: Study of the Effect of Nicotinism in the Albino Rat. J. Pharmacol. and Exper. Ther., **55**:274 (Nov.) 1935.

TWENTY-FIVE YEARS AGO

From JOURNALS of 1911

Laboratory Diagnosis.[1]—"Medical and surgical practice has advanced marvellously in the last twenty-five years.

"Much of this advance has been accomplished in the laboratory; for example, Murphy's button, many intestinal sutures, much of the Mayo brothers' work, and numerous methods which serve for greater accuracy in the internist's hands. . . . .

"Examples of valuable aid in many cases to be derived from laboratory study . . . are the diazo reaction which helps to confirm the diagnosis of typhoid or in the eruptive diseases may distinguish between true measles and German measles; . . . the use of the laboratory by the surgeon to control his technic when . . . things go wrong, and a bacterial examination of his and his assistant's and nurse's hands, the ligatures and dressings, discovers where the source of infection is. . . . . There is the very common case of the chronic dyspeptic or neurasthenic, who has drifted from one physician to another . . . who by complete examinations of blood, urine and feces discovers that the underlying cause is putrefaction of proteids in the small and large intestine. . . . . With persistent deficiency in the excretion of the total solids of the urine, with too low urea excretion and too high acidity, a condition which is very common in chronic invalids and at times is followed by thyroid troubles, a series of urine examinations indicates the nature of the disturbance and the required treatment as nothing else can."

Malaria.[2]—"According to the statistics obtained from the last census the number of deaths from malaria in the United States in the year 1900 was 14,909. The following states showed the greatest mortality: Arkansas leading with 1,730; then Texas, with 1,331; Alabama, 1,055; Louisiana, 1,030; Georgia, 1,011; Tennessee, 987; Missouri, 965; Mississippi, 938; South Carolina, 749; North Carolina, 527; Illinois, 497; Virginia, 409; Indiana, 340, and New York, 308. These statistics are of questionable value, since they are largely derived from information obtained by the census enumerators in the rural districts, and no doubt many deaths reported from malaria were due to typhoid fever and other diseases."

Large Ovarian Cyst.[3]—". . . The patient after admission to the hospital weighed 222 pounds. The greatest

1. Thayer, A. E.: The Value and Limits of Laboratory Diagnosis. Sou. Med. Jour **4**:139, 1911.
2. Harris, Seale: The Radical Cure of Malaria, Its Importance and How It Is Attained. Sou. Med. Jour. **4**:153, 1911.
3. Horsley, J. Shelton: Large Ovarian Cysts. Surg., Gyn. & Obst. **12**:115, 1911.

abdominal circumference was 63 inches. . . . The pedicle [of the cyst] was found springing from the right ovary . . . about one and one-half inch in width. . . . The cyst weighed 116 pounds. . . . Five days after operation the patient weighed 105½ pounds."

Etiology of Eclampsia.[3]—"With few exceptions most workers are trying to explain the eclamptic phenonema by means of ferment action. Dienst believes that in eclampsia the well-known hyperleukocytosis of normal pregnancy is exaggerated . . . large quantities of free fibrin ferment circulate in the vessels and produce thrombosis. . . . He . . . has used hirudin (leech extract) in three cases of eclampsia as this preparation inhibits coagulation.

"Hofbauer regards the placenta as the site of ferments which under pathological conditions enter the maternal blood stream and produce autolytic disintegration of the liver. . . . Anderson and Rosenau . . . obtained anaphylactic phenonema in guinea pigs by sensitization with slightly autolyzed guinea pig placenta. . . . Selheim proclaims that most likely the mammary glands elaborate the poison to which eclampsia is due and reports a case in which ablation of these *non-vital* organs cured the disease! . . . Far more valuable effort is consumed in disproving such published results than the advantages actually made warrant."

3. Frank, Robert T.; and Heimann, W. J.: The Placental Theory of Eclampsia; Further Experiments with the Compliment Fixation Text. Ibid., p. 451.

Correspondence

AN EXPERIMENTAL STUDY OF THE TREATMENT OF BENZOL-PRODUCED AGRANULOCYTOSIS IN ALBINO RATS

Editor, SOUTHERN MEDICAL JOURNAL:

Please insert a notice correcting a rather serious error which appeared in my article published in the December issue. This error occurs on page 1123, first paragraph under Conclusions, second line. The words "not properly" should be substituted for "properly." We have compared the paper in print with the original manuscript and find that the error is not ours. In proof reading at this office the error was not caught.

Very truly yours,

ALVIS E. GREER, M.D.

Houston, Texas, December 21, 1935.

Book Reviews

Modern Home Medical Adviser: Your Health and How to Preserve It. Edited by Morris Fishbein, M.D. 905 pages, illustrated. Garden City: Doubleday, Doran & Co., Inc., 1935.

This book has much the same outward appearance and size of the old home medical books that were found in almost every home a few years ago, but there the similarity ends. The content is entirely new, the contributors have been selected from outstanding men in their various fields, and Dr. Fishbein has written many of the chapters, edited and given a foreword to them all.

The first chapter deals with the importance of medical college, society membership and licensure in the selection of the family physician. The second chapter outlines the requisites of the family medicine chest and explains their uses. A chapter on first aid contains a great deal of sane advice. The hygiene of women is given adequate attention. It is debatable whether the average woman will have sufficient intelligence to apply the laws of Kraus relating to contraception to herself.

Every mother and daughter will be benefited by the discussion on sex hygiene, which is comprehensive and conservative. It is not often that this subject is clearly expounded for lay readers. Obviously the writer on childbirth prefers the hospital for the delivery. As a large number of babies are stillborn in the homes, a few words on the preparation of the homes and the articles which are needed would seem apropos in a book of this nature. The description of caring for the mother and baby when the doctor fails to arrive in time is worthy of note. The chapter on infant feeding is next followed by a discussion on the diseases of childhood.

The chapters on transmissible diseases include typhoid fever, tetanus, erysipelas, rabies, undulant fever, Vincent's angina, amebiasis, tularemia, malaria (atabrine is not mentioned), rat-bite fever, Rocky Mountain spotted fever, glanders, psittacosis and epidemic encephalitis. Next are found a number of chapters in which diseases are grouped according to the region affected. The writer suggests that pneumonia patients be hospitalized.

The chapter on allergy is enthusiastic. The internal glandular system, diabetes, cancer, the hazards of industry, blood pressure and the skin are discussed. An excellent chapter on soap is included.

Chapters on ear, nose and throat, care of the teeth, diet, posture, the foot, nervous and mental diseases and finally old age complete the text. The index is elaborate and makes the book practical. The book brings to the reader a reasonable working knowledge of the body in health and disease. Preventive medicine is stressed, self-medication is minimized and the physician is given importance as a factor in treatment. The illustrations are well selected and the text is easy to read. Every physician should welcome this book into his patients' home.

Preventive Medicine and Hygiene. By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard Medical School; Professor of Epidemiology, Harvard School of Public Health. Sixth Edition. 1481 pages, illustrated. New York: D. Appleton-Century Company, 1935. Cloth.

This book has long been recognized as a standard text for students of medicine and public health. The sixth edition is of the same general excellence, has been extensively rewritten and brought up to date. Subjects included for the first time are: contraception, maternal mortality, heart disease, diabetes, ringworm, snake poisoning, psittacosis, and periodic health examinations. The book contains a vast amount of material and covers those fields of medical and related sciences which form the foundation of public health work.

BOOK REVIEWS continued on page 118

OFFICERS 1935-1936

The following is a complete roster of the officers of the Southern Medical Association for 1935-36, and of associations meeting conjointly with the Southern Medical Association:

President—Dr. Fred M. Hodges, Richmond, Virginia.

First Vice-President—Dr. Quitman U. Newell, St. Louis, Missouri.

Second Vice-President—Dr. J. E. Knighton, Shreveport, Louisiana.

Secretary-Manager (Secretary, Treasurer and General Manager)—Mr. C. P. Loranz, Birmingham, Alabama.

Editor of Journal—Dr. M. Y. Dabney, Birmingham, Alabama.

Associate Editor of Journal—Mrs. Eugenia B. Dabney, Birmingham, Alabama.

Councilors—Dr. M. Pinson Neal, Chairman, Columbia, Missouri; Dr. M. Toulmin Gaines, Mobile, Alabama; Dr. Harvey S. Thatcher, Little Rock, Arkansas; Dr. Wm. Thornwall Davis, Washington, D. C.; *Dr. Edward Jelks, Jacksonville, Florida; Dr. Edgar G. Ballenger, Atlanta, Georgia; Dr. C. W. Dowden, Louisville, Kentucky; Dr. Arthur A. Herold, Shreveport, Louisiana; Dr. Edward A. Looper, Baltimore, Maryland; Dr. Harvey F. Garrison, Jackson, Mississippi; Dr. Paul H. Ringer, Asheville, North Carolina; Dr. W. K. West, Oklahoma City, Oklahoma; *Dr. Frank H. McLeod, Florence, South Carolina; Dr. Eugene Rosamond, Memphis, Tennessee; *Dr. Elbert Dunlap, Dallas, Texas; Dr. Vincent W. Archer, University, Virginia; Dr. James R. Bloss, Huntington, West Virginia.

Board of Trustees (All are Past-Presidents)—Dr. Hugh S. Cumming, Chairman, Washington, D. C.; Dr. Felix J. Underwood, Jackson, Mississippi; Dr. Lewis J. Moorman, Oklahoma City, Oklahoma; Dr. Irvin Abell, Louisville, Kentucky; Dr. Hugh Leslie Moore, Dallas, Texas; Dr. H. Marshall Taylor, Jacksonville, Florida.

Section on Medicine—Dr. William B. Porter, Chairman, Richmond, Virginia; Dr. O. P. J. Falk, Vice-Chairman, St. Louis, Missouri; Dr. John B. Youmans, Secretary, Nashville, Tennessee.

Section on Pediatrics—Dr. M. Hines Roberts, Chairman, Atlanta, Georgia; Dr. T. C. Hempelmann, Vice-Chairman, St. Louis, Missouri; Dr. Hughes Kennedy, Jr., Secretary, Birmingham, Alabama.

Section on Gastroenterology—Dr. James Alto Ward, Chairman, Birmingham, Alabama; Dr. Lay Martin, Vice-Chairman, Baltimore, Maryland; Dr. H. E. Murry, Secretary, Texarkana, Arkansas.

Section on Pathology—Dr. George T. Caldwell, Chairman, Dallas, Texas; Dr. Wiley D. Forbus, Vice-Chairman, Durham, North Carolina; Dr. Roy R. Kracke, Secretary, Emory University, Georgia.

Section on Neurology and Psychiatry—Dr. Frank H. Redwood, Chairman, Norfolk, Virginia; Dr. Lawrence F. Woolley, Vice-Chairman, Towson, Maryland; Dr. Frank H. Luton, Secretary, Nashville, Tennessee.

Section on Radiology—Dr. Henry J. Walton, Chairman, Baltimore, Maryland; Dr. James A. Meadows, Vice-Chairman, Birmingham, Alabama; Dr. Roy G. Giles, Secretary, Temple, Texas.

Section on Dermatology and Syphilology—Dr. Jack W. Jones, Chairman, Atlanta, Georgia; Dr. Harry M. Robinson, Vice-Chairman, Baltimore, Maryland; Dr. Winston U. Rutledge, Secretary, Louisville, Kentucky.

Section on Surgery—Dr. Isaac A. Bigger, Chairman, Richmond, Virginia; Dr. James Barrett Brown, Vice-Chairman, St. Louis, Missouri; Dr. Alton Ochsner, Secretary, New Orleans, Louisiana.

Section on Bone and Joint Surgery—Dr. Robert W. Johnson, Jr., Chairman, Baltimore, Maryland; Dr. Guy A. Caldwell, Vice-Chairman, Shreveport, Louisiana; Dr. Alfred R. Shands, Jr., Secretary, Durham, North Carolina.

Section on Gynecology—Dr. Lee F. Turlington, Chairman, Birmingham, Alabama; Dr. John C. Burch, Vice-Chairman, Nashville, Tennessee; Dr. R. A. Ross, Secretary, Durham, North Carolina.

Section on Obstetrics—Dr. James R. Bloss, Chairman, Huntington, West Virginia; Dr. Warren E. Massey, Vice-Chairman, Dallas, Texas; Dr. Milton Smith Lewis, Secretary, Nashville, Tennessee.

Section on Urology—Dr. Thomas D. Moore, Chairman, Memphis, Tennessee; Dr. Grayson Carroll, Vice-Chairman, St. Louis, Missouri; Dr. Jefferson C. Pennington, Secretary, Nashville, Tennessee.

Section on Railway Surgery—Dr. Ross A. Woolsey, Chairman, St. Louis, Missouri; Dr. J. W. Palmer, Vice-Chairman, Ailey, Georgia; Dr. George A. Traylor, Secretary, Augusta, Georgia.

Section on Ophthalmology and Otolaryngology—Dr. Millard F. Arbuckle, Chairman, St. Louis, Missouri; Dr. Grady E. Clay, Vice-Chairman, Atlanta, Georgia; Dr. Oscar M. Marchman, Secretary, Dallas, Texas.

Section on Medical Education—Dr. Harry C. Schmeisser, Chairman, Memphis, Tennessee; Dr. Russell H. Oppenheimer, Vice-Chairman, Atlanta, Georgia; Dr. Harvey S. Thatcher, Secretary, Little Rock, Arkansas.

Section on Public Health—Dr. Douglas L. Cannon, Chairman, Montgomery, Alabama; Dr. William H. F. Warthen, Vice-Chairman, Baltimore, Maryland; Dr. W. C. Williams, Secretary, Nashville, Tennessee.

American Public Health Association, Southern Branch (meeting conjointly with Southern Medical Association)—Dr. I. C. Riggin, President, Richmond, Virginia; Dr. C. J. Vaughn, First Vice-President, Lexington, Mississippi; Miss Frances Montgomery, Second Vice-President, Montgomery, Alabama; Mr. M. C. Baer, Third Vice-President, Little Rock, Arkansas; Dr. G. F. McGinnes, Secretary-Treasurer, Richmond, Virginia.

National Malaria Committee (meeting conjointly with Southern Medical Association)—Dr. L. O. Howard, Honorary Chairman, Washington, D. C.; Dr. Herbert C. Clark, Chairman, Panama, Republic of Panama; Dr. W. V. King, Chairman-Elect, Orlando, Florida; Dr. George E. Riley, Vice-Chairman, Jackson, Mississippi; Dr. Mark F. Boyd, Secretary-Treasurer, Tallahassee, Florida.

American Society of Tropical Medicine (meeting conjointly with Southern Medical Association)—Dr. Henry E. Meleney, President, Nashville, Tennessee; Dr. Herbert C. Clark, President-Elect, Panama, Republic of Panama; Dr. Alfred C. Reed, Vice-President, San Francisco, California; Dr. N. Paul Hudson, Secretary-Treasurer, Columbus, Ohio; Dr. Charles F. Craig, Editor, New Orleans, Louisiana.

Allergy Clinic and Round Table (meeting conjointly with Southern Medical Association)—Dr. Hal M. Davison, Chairman, Atlanta, Georgia; Dr. Alan G. Cazort, Vice-Chairman, Little Rock, Arkansas; Dr. Charles H. Eyermann, Secretary, St. Louis, Missouri.

Society for Experimental Biology and Medicine, Southern Section (meeting conjointly with Southern Medical Association)—Dr. Harold Cummings, Chairman, New Orleans, Louisiana; Dr. Roy H. Turner, Vice-Chairman, New Orleans, Louisiana; Dr. Alton Ochsner, Secretary, New Orleans, Louisiana.

Southern Association of Anesthetists (meeting conjointly with Southern Medical Association)—Dr. Joseph McNearney, President, Maplewood, Missouri; Dr. Eldon B. Tucker, President-Elect, Morgantown, West Virginia; Dr. Joseph P. Bogan, Vice-President, Washington, D. C.; Dr. Wm. Hamilton Long, Secretary-Treasurer, Louisville, Kentucky.

American Academy of Pediatrics, Region 2 (meeting conjointly with Southern Medical Association)—Dr. Edward Clay Mitchell, Chairman, Memphis, Tennessee.

Women Physcians of the Southern Medical Association—To be named.

Woman's Auxiliary to the Southern Medical Association—Mrs. Oliver W. Hill, President, Knoxville, Tennessee; Mrs. Frank N. Haggard, President-Elect, San Antonio, Texas; Mrs. S. N. Prunty, First Vice-President, Parkersburg, West Virginia; Mrs. Joseph M. Trigg, Second Vice-President, St. Louis, Missouri; Mrs. C. B. Erickson, Recording Secretary, Shreveport, Louisiana; Mrs. W. A. Shelton, Corresponding Secretary, Knoxville, Tennessee; Mrs. E. W. Veal, Treasurer, South Jacksonville, Florida; Mrs. Harvey F. Garrison, Historian, Jackson, Mississippi; Mrs. E. V. Caldwell, Parliamentarian, Huntsville, Alabama.

*Term expired with St. Louis meeting. Successor not yet appointed.

Southern Medical Association

Minutes of Twenty-Ninth Annual Meeting

St. Louis, Missouri, November 19-22, 1935

GENERAL PUBLIC SESSION

Tuesday, November 19, 8:00 p.m.

A General Public Session was held in the Jefferson Hotel, Gold Room, St. Louis, Missouri, and was called to order by the President, Dr. H. Marshall Taylor, Jacksonville, Florida, who presided.

Dr. Alton Ochsner, Professor of Surgery, Tulane University School of Medicine, New Orleans, presented the subject, "Pain in the Abdomen" (Lantern Slides).

Dr. Seale Harris, Past-President, Southern Medical Association, Birmingham, Alabama, presented the subject, "Reducing Fads versus Simple Rational Reduction Diets" (Lantern Slides).

Dr. Arthur T. McCormack, State Health Officer, Louisville, Kentucky, presented the subject, "The Romance of Immunization."

Rev. Alphonse M. Schwitalla, S.J., Ph.D., Dean, St. Louis University School of Medicine, St. Louis, presented the subject, "Society's Debts to the Doctor."

GENERAL SESSION

PRESIDENTS' NIGHT

Wednesday, November 20, 8:00 p.m.

The Association met in General Session at the Jefferson Hotel, Gold Room, St. Louis, Missouri, and was called to order by Dr. Quitman U. Newell, of St. Louis, General Chairman of the Committee on Arrangements, who presided during the first part of the session.

Rev. Karl Morgan Block, D.D., Pastor, St. Michael and St. George's Episcopal Church, St. Louis, delivered the Invocation.

Dr. Neil S. Moore, President of the St. Louis Medical Society, St. Louis, delivered an Address of Welcome in behalf of the Society and of St. Louis.

Dr. E. Lee Miller, President of the Missouri State Medical Association, Kansas City, delivered an Address of Welcome in behalf of the State Association and of Missouri.

Dr. Stewart R. Roberts, Past-President of the Southern Medical Association, Atlanta, Georgia, responded to the Addresses of Welcome.

Dr. Quitman U. Newell, General Chairman, introduced the President of the Southern Medical Association, Dr. H. Marshall Taylor, of Jacksonville, Florida, who presided during the remainder of the session.

Dr. James Tate Mason, President-Elect of the American Medical Association, Seattle, Washington, brought greetings from the American Medical Association.

Sitting with the President, by his invitation, in addition to the Past-Presidents of the Southern Medical Association, were a number of Presidents of other medical associations, state, regional and national, and all were individually introduced by the President, Dr. Taylor.

Dr. H. Marshall Taylor, of Jacksonville, Florida, President of the Southern Medical Association, read his President's Address entitled "John Gorrie: Physician, Scientist, Inventor" (published in the December issue of the JOURNAL, page 1075).

REPORT OF COUNCIL

Dr. James R. Bloss, Huntington, West Virginia, Chairman of the Council, presented the following report for the Council:

To the Members of the Southern Medical Association:

The Council convened in two regular sessions in Private Dining Room No. 4, Jefferson Hotel, St. Louis, Missouri, Tuesday and Wednesday, November 19 and 20, 1935, at 12:30 p.m. Present on both days: Dr. James R. Bloss, Chairman, Huntington, West Virginia; Dr. M. Toulmin Gaines, Mobile, Alabama; Dr. Harvey S. Thatcher, Little Rock, Arkansas; Dr. William Thornwall Davis, Washington, District of Columbia; Dr. Edward Jelks, Jacksonville, Florida; Dr. Edgar G. Ballenger, Atlanta, Georgia; Dr. C. W. Dowden, Louisville, Kentucky; Dr. Arthur A. Herold, Shreveport, Louisiana; Dr. Edward A. Looper, Baltimore, Maryland; Dr. Harvey F. Garrison, Jackson, Mississippi; Dr. M. Pinson Neal, Columbia, Missouri; Dr. Paul H. Ringer, Asheville, North Carolina; Dr. W. K. West, Oklahoma City, Oklahoma; Dr. Frank H. McLeod, Florence, South Carolina; Dr. Eugene Rosamond, Memphis, Tennessee; Dr. Elbert Dunlap, Dallas, Texas; and Dr. R. Finley Gayle, Jr., Richmond, Virginia. Sitting with the Council: Dr. H. Marshall Taylor, President, Jacksonville, Florida; Dr. M. Y. Dabney, Editor, Birmingham, Alabama; and Mr. C. P. Loranz, Secretary-Manager, Birmingham, Alabama.

The invitations of the Baltimore City Medical Society and the Medical and Chirurgical Faculty of the State of Maryland, to hold the 1936 meeting in Baltimore, were unanimously accepted.

An invitation from the Oklahoma City Medical Society to meet in Oklahoma City in 1937 was received and passed for action at the meeting in 1936.

The Council heard a report from the President, Dr. H. Marshall Taylor, on his activities for the year, particularly on his work to increase the membership.

The report of the special Committee on Membership, composed of Dr. Frank K. Boland, Chairman, Atlanta, Georgia, Dr. James R. Bloss, Huntington, West Virginia, and Dr. Edward T. Newell, Chattanooga, Tennessee, appointed two years ago and continued last year, was read and approved. The Committee was continued for another year with thanks for their past service.

The Council expressed the desire that the incoming President inform all officers, Chairmen and Secretaries of Sections, that the Councilor living in his respective state is peculiarly qualified to assist them in selecting prospective essayists for the program of the annual meetings and to suggest to those in charge of programs that they avail themselves of such assistance as the Councilors may be able to give.

The Council considered the advisability of modifying a rule of several years standing that only one man from outside the

territory be permitted on any section program and reaffirmed its previous action.

The Council considered the organization plan of the Woman's Auxiliary to the Southern Medical Association and suggests to the Auxiliary that their organization plan be modified to make the wife, daughter and mother of every member of the Southern Medical Association automatically a member of the Woman's Auxiliary and that there be no dues, individual or organization, the Southern Medical Association from its active funds appropriating an amount sufficient to print the minutes of the Auxiliary and to provide a small contingent fund for the expenses of its officers, the Secretary-Manager being empowered to make the arrangement with the Auxiliary should they elect to modify their organization plan. It was thought since the Auxiliary of the Southern Medical Association, by the very nature of the Association's organization plan, could not be other than social, inspirational and informative, that they were not in need of finances except for printing their minutes and for incidental expenses of their officers.

A special committee, composed of Dr. M. Pinson Neal, Chairman, Dr. Harvey F. Garrison, Dr. C. W. Dowden and Dr. M. Y. Dabney, was appointed to consider and recommend a change in the Constitution provision regarding membership. The Committee reported as follows:

It is recommended that Article 3 of the Constitution, subhead Membership, be changed so as to create three types of members, which shall be limited to members of the white race and shall be designated as follows: (1) Members; (2) Honorary Members; and (3) Associate Members. As amended, Article 3 of the Constitution shall read as follows:

Section 1. *Members.* The membership of this Association shall be limited to the white members of the various state and local medical societies of the following states, viz: Alabama, Arkansas, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia; to white medical officers of the United States Army, Navy, Public Health Service and Veterans' Bureau, and to white American members of the Canal Zone Medical Association.

Section 2. *Honorary Members.* An active member of this Association who has been a member for a period of not less than ten consecutive years and who is an honorary member of his component society and of his constituent association, or who by reason of ill health or physical disability, or who because of eminence attained in the profession, may at the discretion of the Council be recommended for honorary membership. Such honorary members shall have all the rights and privileges of membership except that they may not hold office nor shall they be required to pay dues.

Section 3. *Associate Members.* The Council may recommend to Associate membership: (1) a layman who in their judgment has rendered meritorious service to the medical profession or to humanity, or (2) a member who has moved from the territory of the Southern Medical Association. An Associate member may not hold office, have voice in the affairs of the Association, or be subject to the regular dues.

It is further recommended that Section 2 of Article 3 in the Constitution as it now reads shall become Section 2 of Article 5.

The report and recommendations of the Committee were approved and are laid on the table for action at the annual meeting one year hence.

The Council considered the advisability of having a Committee on Advertising, said Committee to determine the standards by which advertising for the JOURNAL shall be judged, and to pass on any advertising or advertising copy which may be submitted to them by the Secretary-Manager, the decision of the Committee to be final. The Council created the Committee on Advertising to be composed of three members of the Southern Medical Association, to be chosen by the members of the Council by a mail ballot from six nominations to be made by a special Committee composed of Dr. Eugene Rosamond, Dr. C. W. Dowden and Dr. M. Y. Dabney.

The Report of the Board of Trustees, incorporating the report of the Secretary-Manager, was read and approved.

REPORT OF THE TRUSTEES

To the Council of the Southern Medical Association:

The Trustees of the Southern Medical Association met in Private Dining Room No. 4 of the Jefferson Hotel, St. Louis, Missouri, Wednesday, November 20, at 8:00 a. m. Present: Dr. Thomas W. Moore, Huntington, West Virginia, Chairman; Dr. Felix J. Underwood, Jackson, Mississippi; Dr. Lewis J. Moorman, Oklahoma City, Oklahoma; and Dr. Hugh Leslie Moore, Dallas, Texas. Sitting with the Trustees: Dr. H. Marshall Taylor, President of the Southern Medical Association, Jacksonville, Florida; and Mr. C. P. Loranz, Secretary-Manager, Birmingham, Alabama.

The Secretary-Manager, Mr. C. P. Loranz, presented the report for the fiscal year ending October 31, 1935. The report was approved as presented and Mr. Loranz commended for his splendid work and for the good showing made. The report is here transmitted to the Council.

The Trustees recommend that an honorarium equal to ten per cent of the net profit from the Tour to Mexico, which will be $517.25, be made to the Secretary-Manager, Mr. Loranz, in appreciation of the splendid work he did in connection with the official tour and for the fine tour he arranged and conducted, said honorarium to be charged to Surplus Account since the profit on the Mexico Tour is now in the Surplus Account on the books of the Association.

The Trustees authorized the Secretary-Manager to purchase United States Savings Bonds to such an amount as he deems he can spare from the active funds of the Association.

There being no further business, the Trustees adjourned.

(Signed) THOMAS W. MOORE, *Chairman.*

REPORT OF SECRETARY-MANAGER

To the Southern Medical Association:

A detailed financial statement for the fiscal year ending October 31, 1935, is here given and is self-explanatory. It will be noted that the net profit for the year was $4,493.34. However, it should be noted that in this statement there is a revenue item of $5,172.40, profit on the official tour to Mexico. Deducting the net profit for the year from this item it will be shown that there was an actual deficit of $679.06 in normal operations for the year. The cash on hand in bank, as shown by the cash book, is $3,348.90.

Included in the assets of the Association are registered United States Government Bonds, purchase value $12,531.40. Of these there are Treasury Bonds, for which we paid $9,831.40, par value $10,000.00, due 1946/1956, yielding 3¼ per cent interest, and United States Savings Bonds, for which we paid $2,700.00, maturity value $3,600.00 in ten years, which is a yield of approximately 2.9 per cent per year for the ten year period.

The books of the Association have been audited by Francis B. Latady and Company, Certified Public Accountants, whose report is transmitted herewith.

Last year we reported 6,132 members, and during the year have received 971 new members. The losses from resignations, deaths and suspensions were 536, leaving net membership at this time of 6,567. A comparative statement of the membership for the past six years accompanies this report.

As your Secretary, Treasurer and General Manager, carrying the title of Secretary-Manager, I have endeavored this year, as I have in past years, to conduct your affairs in a satisfactory manner, trying at all times to be faithful and efficient. I have tried to be as economical as possible and to carry on the Association activities at the lowest cost without curtailing any more than possible the size of the JOURNAL each month and other Association activities.

I wish to express my appreciation for the cooperation of the President, Dr. H. Marshall Taylor, and all other officers, general and of the sections, and of the Editor, Dr. M. Y. Dabney, and Associate Editor, Mrs. Dabney, and all those working with me at headquarters, as well as the General Chairman for the St. Louis meeting, Dr. Quitman U. Newell, and those working with him. I appreciate their help and cooperation.

(Signed) C. P. LORANZ, *Secretary-Manager.*

BALANCE SHEET

Balance Sheet, Southern Medical Association, Fiscal Year Ending October 31, 1935 (November 1, 1934, to October 31, 1935).

Surplus			$17,138.29
U. S. Government Bonds		$12,531.40	
Paper Stock (Print Paper on hand)		981.80	
Furniture and Fixtures		3,019.83	
Depreciation			1,049.10
Profit and Loss		302.65	
Revenue			
Interest on Bonds and Savings	$ 375.00		
Mexico Tour	5,172.40		
Paper Stock Profit	910.71		
Advertising	14,788.02		
Dues	22,959.40		
Subscription	1,027.34		
Reprints	233.72		
Exhibits	7,020.00		
Interest and Discount	430.54—		52,917.13
Expense			
Publishing	13,367.26		
Cuts and Electros	1,993.86		
Journal Wrappers	473.31		
Second Class Postage	1,022.65		
Office Postage	2,551.55		
Salary	15,251.70		
Stationery and Printing	4,155.43		
Office Supplies and Expense	514.06		
Telephone and Telegraph	514.17		
Office Rent	1,377.40		
Subscription Commissions	21.75		
Advertising Expense	270.15		
Addressograph Expense	79.00		
Traveling Expense	2,032.40		
Expense at San Antonio	3,772.42		
General Expense	491.58		
Section Secretaries' Expense	210.50		
Banking Expense	21.95—	48,121.14	
Accounts Receivable (owe us)		2,956.55	
Accounts Payable (we owe)			157.75
Cash		3,348.90	
		$71,262.27	$71,262.27

Revenue Accounts	$52,917.13
Expense Accounts	48,121.14
Gross Profit	4,795.99
Less Profit and Loss	302.65
Net Profit for year ending Oct. 31, 1935	4,493.34

SURPLUS ACCOUNT

Surplus, October 31, 1934	$17,138.29
Net Profit for year ending Oct. 31, 1935	4,493.34
Surplus, October 31, 1935	$21,631.63

STATEMENT OF ASSETS AND LIABILITIES
October 31, 1935

Assets

U. S. Government Bonds	$12,531.40
Paper Stock (Print Paper on hand)	981.80
Furniture and Fixtures (net—less Depreciation)	1,970.73
Accounts Receivable (owe us)	2,956.55
Cash	3,348.90
	$21,789.38

Liabilities

Surplus	$21,631.63
Accounts Payable (we owe)	157.75
	$21,789.38

MEMBERSHIP BY STATES

The following is a comparative statement of the membership of the Southern Medical Association for the past six years:

	1930	1931	1932	1933	1934	1935
Alabama	595	568	500	470	513	458
Arkansas	284	226	217	175	220	202
District of Columbia	161	163	161	149	157	154
Florida	602	512	401	346	404	372
Georgia	719	634	506	424	502	524
Kentucky	439	518	455	331	228	332
Louisiana	444	529	546	445	419	443
Maryland	291	285	271	251	252	245
Mississippi	457	445	419	335	345	333
Missouri	241	234	228	191	199	419
North Carolina	488	386	343	307	375	365
Oklahoma	248	254	247	207	236	258
South Carolina	264	245	203	182	204	185
Tennessee	612	575	515	421	464	459
Texas	903	816	724	587	944	1160
Virginia	310	316	292	310	402	382
West Virginia	213	198	162	140	185	183
Other States and Foreign	106	104	137	86	83	93
Totals	7377	7008	6327	5357	6132	6567

REPORT OF AUDITOR

SOUTHERN MEDICAL ASSOCIATION:

We have audited the books and accounts of the Southern Medical Association, of Birmingham, Alabama, for the year ended October 31, 1935, and

WE HEREBY CERTIFY that in our opinion, the Trial Balance, Summary of Earnings, Statement of Assets and Liabilities, and Analysis of the Surplus Account, as at October 31, 1935, which are hereto attached, correctly set forth the condition of the Association as at October 31, 1935, and the results of its operation for the fiscal year ended on that date.

The item of Profit and Loss, amounting to $302.65, is made up of depreciation on furniture and fixtures, $302.00, and an allowance of $0.65 on an account.

The total revenues increased by $5,531.77, most of which was the profit made on the Mexico Tour of $5,172.40. The revenue from advertising increased by $470.58 while the remaining revenues remained approximately stationary. This increase in revenues was accompanied by an increase of only $1,641.48 in the expenses, all of which, and a little more, was in the Publishing account, which increased $1,704.88, the other expenses remaining approximately the same. Due to the much greater increase in revenues, the profit for the year was $4,493.34 as against $613.60, or a little over seven times as much profit as the year before. While, of course, your institution is not operated primarily for profit, it is still gratifying to see that your exceedingly capable management has been able to produce such a satisfactory result.

Your books and accounts are in splendid condition, carefully and accurately kept, and we have no criticism to offer.

(Signed) FRANCIS B. LATADY & COMPANY,
Certified Public Accountants,
By FRANCIS B. LATADY, C. P. A.

The Council considered the advisability of having some standard for the guidance of the Committee on Scientific Awards and adopted these as the standards for judging the scientific exhibits: (1) Originality; (2) Ingenuity of presentation; (3) Practicability; (4) Applicability to the practitioner of medicine; (5) Quality; (6) Teaching value; (7) Personal demonstration; and (8) Quantity.

The Council voted to change the present designation of Assistant Editor to Associate Editor, the JOURNAL in the future to have an Editor and an Associate Editor.

It was suggested that the Council instead of meeting two days, as in the past several years, in the future should meet each day, that is Tuesday, Wednesday and Thursday, promptly at 12:30 and adjourn not later than 2:00 p.m.

The Council approved a suggestion that the Association send

the Southern Medical Journal for one year to each physician who registers in a state in the territory of the Southern Medical Association making the JOURNAL complimentary to this physician for the first year of his practice in our territory.

The Council, speaking for the Association, expresses to the St. Louis Medical Society, the St. Louis County Medical Society, the Woman's Auxiliary to the St. Louis Medical Society, the hotels, the press and the radio broadcasting stations of St. Louis and to all others who have contributed so much to the success of the meeting in this city, their sincere appreciation for the hospitality extended to us while guests in St. Louis. It is the opinion of the Council that this St. Louis meeting has been one of the best in the history of the Association. Those who are in attendance have enjoyed the sincere hospitality of the profession and feel that a great measure of credit for the success of the meeting is due to the interest manifested by the local profession and by the citizens of St. Louis.

The Council proceeded to the election of three Trustees for the term of two years each, the terms of Dr. Thomas W. Moore, Dr. Felix J. Underwood and Dr. Irvin Abell expiring with this meeting. According to precedent, Dr. Thomas W. Moore, oldest member in point of service, was retired, Dr. Underwood and Dr. Abell were reelected for a term of two years, and the outgoing President, Dr. H. Marshall Taylor, was elected in place of Dr. Moore.

The Council unanimously elected Dr. M. Pinson Neal, Columbia, Missouri, as its Chairman for next year.

The Council then adjourned as an executive body to meet in Baltimore, Maryland, at the regular meeting of the Association in 1936 and reconvened as a nominating committee for the general officers of the Association. The nominations will be presented to you in the regular order of business following your action on this report.

(Signed) JAMES R. BLOSS, *Chairman.*

It was moved the Report of the Council be adopted, was duly seconded, and carried without a dissenting vote.

REPORT OF NOMINATING COMMITTEE

The Council, as your Nominating Committee, presents for your consideration the following:

For President: Dr. Fred M. Hodges, Richmond, Virginia.

For First Vice-President: Dr. Quitman U. Newell, St. Louis, Missouri.

For Second Vice-President: Dr. J. E. Knighton, Shreveport, Louisiana.

Your Secretary, Treasurer and General Manager, carrying the title of Secretary-Manager, Mr. C. P. Loranz, was elected four years ago for a term of five years.

Your Editor, Dr. M. Y. Dabney, and Associate Editor, Mrs. Eugenia B. Dabney, were elected last year for three years.

(Signed) JAMES R. BLOSS, *Chairman.*

It was moved the Report of the Nominating Commitee be received and the nominees elected by acclamation. The motion was duly seconded and carried without a dissenting vote. The President, Dr. Taylor, declared the nominees duly elected.

Dr. Fred M. Hodges, Richmond, Virginia, the newly elected President of the Southern Medical Association, was escorted to the platform and introduced by Dr. Taylor. Dr. Hodges, in accepting the Presidency, said:

I appreciate this very great honor more than I can possibly tell you. For a long time I have been an interested and enthusiastic member of the Southern Medical Association, and have always found everyone connected with the Association interested in, and enthusiastic for, any undertaking that was for the good of the society.

You are all familiar with the excellent scientific programs put on by the Southern Medical Association. This year is an outstanding example. You are also familiar with the unusual *esprit de corps* and fellowship found within its ranks. Next year I shall do everything that I possibly can to help to continue the excellent work the society is doing. I thank you.

Dr. Quitman U. Newell, St. Louis, the newly elected First Vice-President, and Dr. J. E. Knighton, Shreveport, Louisiana, the newly elected Second Vice-President, were both escorted to the platform and introduced by Dr. Taylor.

After announcements by the General Chairman, the General Session adjourned, and with the completion of the programs by the Sections in session Thursday and until noon Friday, the Association adjourned to meet in Baltimore, Maryland, November, 1936.

SCIENTIFIC AWARDS

The Committee on Scientific Awards presented the following report:

We, your Committee on Scientific Awards, visited the scientific exhibits, went over them very carefully, and make the following report:

First award to Dr. Ernest W. Goodpasture, Vanderbilt University School of Medicine, Nashville, Tennessee, for his exhibit on preparation of anti-smallpox vaccine from chick embryos, and experimental mumps in monkeys.

Second award to Dr. Joseph W. Larimore, Washington University School of Medicine, St. Louis, Missouri, for his exhibit on gastro-enterology.

Third award to Dr. George Herrmann, University of Texas School of Medicine, Galveston, Texas, and Dr. Louis G. Herrmann, University of Cincinnati School of Medicine, Cincinnati, Ohio, for their exhibit on obliterative arterial diseases of the extremities.

Honorable mention to:

Dr. Edward A. Doisy and Dr. Sidney A. Thayer, St. Louis University School of Medicine, St. Louis, Missouri, for their exhibit on preparation and properties of theelin.

Dr. Ernest Sachs and Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis, Missouri, for their exhibit on brain and spinal cord tumors from patients now free of symptoms.

Dr. Beverley R. Tucker, Medical College of Virginia, Richmond, Virginia, for his exhibit on reinvestigation of pellagra.

Dr. Daniel C. Elkin, Emory University School of Medicine, Atlanta, Georgia, for his exhibit on aneurysms.

(Signed) HARRY C. SCHMEISSER, *Chairman*
JAMES M. MASON,
C. C. BASS,
Committee.

The Committee on Scientific Awards consists each year of the Chairman of the Section on Pathology, the Chairman of the Section on Surgery and the Chairman of the Section on Medicine. Dr. Harry C. Schmeisser was Chairman of the Section on Pathology and was Chairman of the Committee; Dr. J. M. Mason was Chairman of the Section on Surgery and Dr. C. C. Bass served as the third member of the Committee by appointment of the Chairman of the Section on Medicine.

GOLF TOURNAMENTS

Dr. Arthur M. Alden, St. Louis, Missouri, Chairman of the Golf Committee, makes the following report for his Committee:

The fifteenth annual golf tournament for men of the Southern Medical Association was held at St. Louis, Missouri, Meadow Brook Country Club, under the auspices of the St. Louis Medical Society, play being made any time during Tuesday, Wednesday and Thursday, November 19, 20 and 21.

Dr. E. H. Lawson, New Orleans, Louisiana, won the tournament without handicap (low gross), receiving the *Washington Post* Cup, the major trophy in the tournament without handicap.

REGISTRATION

St. Louis Meeting, Southern Medical Association, November 19-22, 1935

	No. Physicians	No. Ladies Accompanying Physicians
Alabama	114	46
Arkansas	97	31
District of Columbia	34	5
Florida	38	9
Georgia	74	18
Kentucky	122	41
Louisiana	65	31
Maryland	25	8
Mississippi	69	33
Missouri (outside St. Louis)	275	70
St. Louis	695	---
North Carolina	44	8
Oklahoma	100	32
South Carolina	19	3
Tennessee	154	46
Texas	145	64
Virginia	50	6
West Virginia	33	13
	2153	464
Illinois	248	62
Indiana	64	22
Iowa	48	16
Kansas	52	21
Nebraska	18	10
Other States and Foreign	111	19
	2694	614
Medical Students	690	
Technical Exhibits	279	
Ass'n. Office and Misc.	18	
	3681	
Ladies	614	
Grand Total	4295	

These figures were compiled from the card registration. There is always a number of physicians attending who neglect to register and this was very noticeable at the St. Louis meeting. The number who attend and fail to register is variously estimated at from 5 to 15 per cent of the total registration. It is believed that very probably at least 10 per cent of the physicians who attended failed to register, and if that be true an additional 269 physicians should be added to the 2,694 who did register, making the actual attendance apparently at least 2,963 physicians, with a grand total of 4,564.

Dr. Benj. M. Baker, Jr., Baltimore, Maryland, was the runner-up in the tournament without handicap (low gross), receiving the Schwarzschild Trophy, the major trophy for the runner-up in the tournament without handicap.

Dr. C. P. Rutledge, Shreveport, Louisiana, won the handicap tournament (low net), receiving the *Dallas Morning News* Cup, the major trophy in the handicap tournament. Dr. Rutledge also won the tournament for low gross, senior class, receiving the Ralston Purina Cup, the major trophy in the low gross, senior class tournament. Dr. Rutledge also won a trophy for the lowest number of putts.

Dr. J. Lewis Hutton, St. Louis, Missouri, won the trophy for the third in low gross, and the trophy for the runner-up in the low gross, senior class.

Dr. Jere L. Crook, Jackson, Tennessee, won the trophy for the third in low net.

The tenth annual tournament for women of the Southern Medical Association was held at St. Louis, Missouri, Meadow Brook Country Club, under the auspices of the St. Louis Medical Society, Wednesday, November 20, 9:00 a.m. to 12:00 noon.

Mrs. J. Lewis Hutton, St. Louis, Missouri, won the trophy for low gross, receiving the Dick X-Ray Company Cup, a new trophy.

The *Washington Post* Cup, the *Dallas Morning News* Cup and the Schwarzschild Trophy, all for men, and the Dick X-Ray Company Cup for women, must each be won three times in succession by the same golfer to become the permanent possession of any one golfer. No one having won any of these trophies three times in succession they will all be in play at the tournament next year.

The weather was quite chilly, which made the number taking part in the golf tournament smaller than usual. The spirit among those participating was splendid and we look forward to a bigger and better tournament next year in Baltimore.

(Signed) ARTHUR M. ALDEN, *Chairman*
J. EDGAR STEWART,
E. LAWRENCE KEYES,
HARRY W. WIESE,
R. B. H. GRADWOHL,
Committee.

TRAP SHOOTING TOURNAMENT

Dr. Charles D. O'Keefe, St. Louis, Missouri, Chairman of the Trap Shooting Committee, makes the following report for his Committee:

The tenth annual trap shooting tournament of the Southern Medical Association was held over the traps of the Riverside Gun Club, St. Louis, Missouri, under the auspices of the St. Louis Medical Society, Wednesday, November 20, at 1:00 p.m.

Dr. J. E. Stevenson, Fort Smith, Arkansas, the high man on 100-16 yard targets, won a leg on the *Atlanta Journal* Bowl, the major trophy for this event. To become the permanent possession of any one shooter the *Atlanta Journal* Bowl must be won three times in succession by the same shooter. No shooter having won a leg three times in succession the bowl will be in the shoot next year.

In Class A, 100-16 yard targets, the three high shooters were as follows: (1) Dr. J. E. Stevenson, Fort Smith, Arkansas; (2) Dr. W. E. Fallis, Louisville, Kentucky; and (3) Dr. J. S. Lutz, Louisville, Kentucky; each receiving a prize donated by (2) Beaumont and Metropolitan Pharmacies and (3) S. G. Adams Stationery Company.

In Class B, 100-16 yard targets, the three high shooters were as follows: (1) Dr. H. L. Ison, Legion, Texas; (2) Dr. R. L. Mason, Roanoke, Virginia; and (3) Dr. M. F. Harmann, St. Louis, Missouri; each receiving a prize donated by (1) C. V. Mosby Company, (2) Comfort Printing and Stationery Company, and (3) Hamilton-Schmidt Instrument Company.

In Class C, 100-16 yard targets, the three high shooters were as follows: (1) Dr. D. L. Penney, St. Louis, Missouri; (2) Dr. E. S. Stroud, Waxahachie, Texas; and (3) Dr. Hall Terry, Goodman, Mississippi; each receiving a prize donated by (1) S. G. Adams Stationery Company, (2) Chas. Schmidt Instrument Company, and (3) Comfort Printing and Stationery Company. Dr. John H. Blackburn, Bowling Green, Kentucky, was the low man in Class C.

Dr. M. F. Harmann, St. Louis, the high man in the handicap tournament, 25 targets, won a leg on the American Sporting Goods Company Cup, the major trophy in this event. To become the permanent possession of any one shooter the American Sporting Goods Company Cup must be won three times (not in succession) by the same shooter.

Dr. E. S. Stroud, Waxahachie, Texas, runner-up in the handicap tournament, receiving a prize donated by Shaar Brothers Stationery Company.

Dr. R. R. Kirkpatrick, Texarkana, Arkansas, the high man in the skeet, 25 targets, won the Mead Johnson and Company Cup, the major trophy in this event.

Dr. D. L. Penney, St. Louis, Missouri, the runner-up in the skeet, won a prize donated by Atlas Towel Company.

Dr. M. F. Harmann, St. Louis, Missouri, high man in the doubles, twelve pair, received a prize donated by A. S. Aloe Company.

Dr. J. E. Stevenson, Fort Smith, Arkansas, high man in the high over all, including skeet, won a leg on the Mallinckrodt Chemical Works Bowl, the major trophy in this event. To become the permanent possession of any one shooter the Mallinckrodt Chemical Works Bowl must be won three times (not in succession) by the same shooter.

Dr. Hal Terry, Goodman, Mississippi, low in the high over all including skeet, won a prize.

The Committee extends thanks to the donors of trophies and prizes, and to the Riverside Gun Club and especially to Dr. David L. Penney, member of the Club, for his cooperation and valuable assistance.

(Signed) CHARLES D. O'KEEFE, *Chairman*
O. R. SEVIN,
J. BARRETT BROWN,
Committee.

RADIO BROADCASTS

Three of the Radio Broadcasting Stations of St. Louis cooperated with the Southern Medical Association in connection with the St. Louis meeting and the Association was on the air for the following programs:

Wednesday, November 20

Station K W K, 3:30-3:45 p.m., "The Romance of Immunization," Dr. Arthur T. McCormack, State Health Officer, Louisville, Kentucky.

Thursday, November 21

Station K O M X, 9:00-9:15 a.m., "Pain in the Abdomen," Dr. Alton Ochsner, Professor of Surgery, Tulane University School of Medicine, New Orleans, Louisiana.

Station K W K, 12:45-1:00 p.m., "Dangerous Reducing Fads versus Simple Rational Reduction Diets," Dr. Seale Harris, Past-President of the Southern Medical Association, Birmingham, Alabama.

Station W I L, 2:05-2:15 p.m., "Society's Debts to the Doctor," Rev. Alphonse M. Schwitalla, S.J., Ph.D., Dean, St. Louis University School of Medicine, St. Louis, Missouri.

WOMEN PHYSICIANS OF THE SOUTHERN MEDICAL ASSOCIATION

Tuesday, November 19, 6:00 p.m.

The twenty-second annual meeting of the Women Physicians of the Southern Medical Association was held in a private dining room of the Jefferson Hotel, St. Louis, Missouri, in the form of the annual banquet. Dr. Katherine M. Schaaf, St. Louis, local Chairman for women physicians, presided.

The address of the evening was given by Dr. Catherine Macfarlane, President-Elect of the Medical Women's National Association, and Professor of Gynecology, Women's Medical College of Pennsylvania, Philadelphia, Pennsylvania.

Dr. Elizabeth Bass, Assistant Professor of Clinical Medicine, Tulane University of Louisiana School of Medicine, and Professor of Clinical Laboratory Diagnosis, Tulane University Graduate School of Medicine, New Orleans, Louisiana, a former Chairman of the Women Physicians of the Southern Medical Association, addressed the group in memory and eulogy of Dr. L. Rosa H. Gantt, Spartanburg, South Carolina, deceased, a former President of the Medical Women's National Association and a former Chairman and one of the founders of the Women Physicians of the Southern Medical Association and its historian at the time of her death. Following the address the group stood silently with bowed heads in memory of Dr. Gantt.

There were present thirty-nine physicians, eighteen visiting physicians and twenty-one St. Louis physicians, who were the hosts to the visitors.

The eighteen visiting physicians were: Dr. Catherine Macfarlane, Philadelphia, Pennsylvania; Dr. Georgianna Theobald, Chicago, Illinois; Dr. Elizabeth Bass, New Orleans, Louisiana; Dr. Kate Savage Zerfoss, Nashville, Tennessee; Dr. Edna Pennington, Nashville, Tennessee; Dr. Pauline Williams, Richmond, Virginia; Dr. Leta J. White, Petersburg, Virginia; Dr. Ray K. Daily, Houston, Texas; Dr. Louise Ingersoll, Asheville, North Carolina; Dr. S. Weizenblatt, Asheville, North Carolina; Dr. Fanny Leeney, Oklahoma City, Oklahoma; Dr. Eleanor Townsend, Charleston, South Carolina; Dr. Caroline McNary, Lenoir, North Carolina; Dr. Nell Noble, Des Moines, Iowa; Dr. Grace Sawyer, Woodward, Iowa; Dr. Elizabeth Ball, Springfield, Illinois; Dr. Mildred Merkle, Peoria, Illinois; and Dr. Gladys Smithwick, China.

The twenty-one St. Louis physicians were: Dr. Katherine M. Schaaf, Chairman, Dr. Dorothy Ellersieck, Dr. Harriet Cory, Dr. Adelheid Bedal, Dr. Caroline Skinner, Dr. Frances Ritchie, Dr. Amalie Napier, Dr. Mary Schmeckebier, Dr. Margaret Smith, Dr. Valentina Suntzeff, Dr. Kate Spain, Dr. Frances Stewart, Dr. Mary McLoon, Dr. Grace Mountjoy, Dr. Edna Stone, Dr. Elizabeth Morris, Dr. Cordelia Puckett, Dr. Irene Blanchard, Dr. Florence Bullis, Dr. Nellie Shaver, and Dr. Mattylee Barnett.

DOCTOR WILLIAM BEAUMONT

An official pilgrimage was made to the grave of Dr. William Beaumont on Tuesday, November 21, this day being the one hundred and fiftieth anniversary of his birth in Lebanon, Connecticut. Dr. Beaumont died in St. Louis on April 25, 1853, and is buried in the Bellefontaine Cemetery. The exercises at the grave were simple and brief.

Dr. H. Marshall Taylor, Jacksonville, Florida, President of the Southern Medical Association, then in annual session at St. Louis, placed the first wreath with appropriate remarks. Others placing wreaths were: Dr. Neil S. Moore, St. Louis, Missouri, President of the St. Louis Medical Society; Dr. E. Lee Miller, Kansas City, Missouri, President of the Missouri State Medical Association; Dr. James R. Bloss, Huntington, West Virginia, a member of the Board of Trustees of the American Medical Association; Dr. Joseph McNearney, Maplewood, Missouri, President of the Southern Association of Anesthetists; Dr. W. E. Burge, Urbana, Illinois, President-Elect of the International Anesthesia Research Society; and Dr. Robert L. Charles, Denver, Colorado, President of the Mid-Western Association of Anesthetists, the anesthetists being in annual session at St. Louis, meeting conjointly with the Southern Medical Association.

Dr. Robert E. Schleuter, St. Louis, Missouri, was Chairman for the Beaumont pilgrimage and exercises.

SCIENTIFIC AND TECHNICAL EXHIBITS

The Scientific and Technical Exhibits in connection with the twenty-ninth annual meeting of the Southern Medical Association were placed in the Exposition Hall of the Municipal Auditorium, St. Louis, Missouri, and were open on Tuesday, Wednesday and Thursday, November 19, 20 and 21, from 8:00 a.m. to 6:00 p.m., and on Friday, November 22, from 8:00 a.m. to 1:00 p.m.

There were seventy-two Scientific Exhibits representing all phases of medicine and surgery, many of them being original research work. The Scientific Exhibits were conveniently placed and arranged so that they could be easily seen and studied. The complete program of Scientific Exhibits appeared on pages 1042-1046 of the November, 1935, JOURNAL and on page 13-19 of the official program.

In the Technical Exhibit there were eighty-three business firms, with a total of one hundred and fifteen exhibit spaces, size 8′x8′. The partial list of business firms appeared on page 1066 of the November, 1935, JOURNAL and the complete list on the inside cover of the official program.

The Scientific and Technical Exhibit at St. Louis was the largest in the history of the Association.

MOVING PICTURES

Municipal Auditorium, Room C, Exposition Floor

Tuesday, Wednesday and Thursday, 1:00 p. m. to 6:00 p. m.

1:00-2:00 p. m.—Volunteer period. Any film on program was repeated as requested or films not on program were run during this period.

2:00-2:22 p. m.—Dr. Karl John Karnaky, Houston, Tex.: Diagnosis of Trichomonas Vaginitis.

2:22-2:59 p. m.—Dr. David Henry Poer, Atlanta, Ga.: (a) Subtotal Thyroidectomy for Exophthalmic Goiter, and (b) Total Thyroidectomy for Nodular Toxic Goiter.

2:59-3:31 p. m.—Dr. H. H. Kramolowsky, St. Louis, Mo.: Urological Diagnosis and Treatment.

3:31-3:48 p. m.—Dr. Lon Grove, Atlanta, Ga.: Modification of Mikulicz's Technic for Resection of Growth in Sigmoid.

3:48-4:05 p. m.—Dr. Roland M. Klemme, St. Louis, Mo.: Accurate Differential Section for Trigeminal Neuralgia.

4:05-4:38 p. m.—Dr. Arthur W. Proetz, St. Louis, Mo.: Ciliary Activity in the Nose.

4:38-5:28 p. m.—Dr. John O. McReynolds, Dallas, Tex.: (a) Six Cataract Extractions; (b) Three Detached Retina Operations; and (c) Three Pterygium Operations.

5:28-5:47 p. m.—Dr. H. Marshall Taylor, Jacksonville, Fla.: Hygiene of Swimming.

5:47-6:04 p. m.—American Social Hygiene Association, New York, N. Y.: Darkfield Diagnosis of Primary Syphilis.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Tuesday, November 19, 10:00 a.m.

A Clinical Session, Medicine-Section A, was held at the Municipal Auditorium, Assembly Room No. 3, St. Louis, Dr. Howard A. Rusk, St. Louis, presiding.

The following presentations were made:

Dr. Chas. Hugh Neilson, Physician-in-Chief, St. John's Hospital; Associate Dean, St. Louis University School of Medicine, St. Louis: "The Indication for Laboratory Work in the Private Practice of Internal Medicine."

DISEASES OF THE CARDIOVASCULAR SYSTEM

Dr. William H. Olmsted, Associate in Medicine, Washington University School of Medicine, St. Louis: "The Significance of the Pulse in Vascular Disease of the Extremities."

Dr. Drew Luten, Associate Professor of Clinical Medicine, Washington University School of Medicine, St. Louis: "The Clinical Significance of Auricular Fibrillation" (Lantern Slides).

Dr. Arthur E. Strauss, Instructor in Medicine, Washington University School of Medicine; Chief of Heart Clinic, Washington University Clinics, St. Louis: "Improving Prognosis in Auricular Fibrillation."

Dr. Julius Jensen, Instructor in Medicine, Washington University School of Medicine, St. Louis: "The Management of Heart Disease in Pregnancy."

Dr. Ralph A. Kinsella, Professor of Internal Medicine, St. Louis University School of Medicine, St. Louis: "Bacterial Endocarditis" (Lantern Slides).

Dr. Elsworth S. Smith, Professor Emeritus of Clinical Medicine, Washington University School of Medicine, St. Louis: "Prognosis in Cases of the Anginal Syndrome."

Dr. O. P. J. Falk, Senior Instructor in Medicine, St. Louis University School of Medicine, St. Louis: "Management of the Anginal Patient."

Dr. William B. Kountz, Assistant Professor of Medicine, Washington University School of Medicine, St. Louis: "The Effect of Drugs on the Human Coronary Circulation" (Lantern Slides).

Dr. E. Lee Shrader, Assistant Professor of Internal Medicine, St. Louis University School of Medicine, St. Louis: "Electrocardiography, An Aid in Diagnosis" (Lantern Slides).

The Session adjourned until 2:00 p.m.

Tuesday, November 19, 2:00 p.m.

The Clinical Session reconvened in the Municipal Auditorium, Assembly Room No. 3, Dr. R. V. Powell, St. Louis, presiding.

The following presentations were made:

DISEASES OF THE RESPIRATORY SYSTEM

Dr. Joseph F. Bredeck, Assistant in Medicine, Washington University School of Medicine, St. Louis: "Practical Use of the Tuberculin Test."

Dr. Louis C. Boisliniere, Associate Professor of Internal Medicine, St. Louis University School of Medicine; Medical Director, Mt. St. Rose Sanatorium for Diseases of the Chest, St. Louis: "The Healthy and the Silicotic Lung" (Lantern Slides).

Dr. H. I. Spector, Senior Instructor in Internal Medicine, St. Louis University School of Medicine, St. Louis: "Silico-Tuberculosis; Autopsy Specimens; Four Unusual Cases with Gross and Histological Findings."

Dr. George D. Kettelkamp, Superintendent, Robert Koch Hospital, St. Louis: "Collapse Therapy in the Treatment of Tuberculosis" (Lantern Slides).

Dr. Walter Baumgarten, Instructor in Clinical Medicine, Washington University School of Medicine, St. Louis: "Antipneumococcic Serum in the Treatment of Pneumonia."

Dr. Julius A. Rossen, Assistant Professor of Pediatrics, St. Louis University School of Medicine, St. Louis: (1) "Empyema in Children" and (2) "Purulent Pericarditis: Report of Case" (Lantern Slides).

Dr. Harry L. Alexander, Associate Professor of Medicine, Washington University School of Medicine, St. Louis "The Treatment of Emphysema by An Abdominal Belt" (Lantern Slides).

DISEASES OF THE GASTRO-INTESTINAL SYSTEM

Dr. Joseph W. Larimore, Associate Professor of Clinical Medicine, Washington University School of Medicine, St. Louis: "The Significance of Gastritis."

Dr. Frank D. Gorham, Instructor in Medicine, Washington University School of Medicine, St. Louis: "Treatment of Intractable Peptic Ulcer by Intramuscular Injections of Bismuth."

Dr. J. Curtis Lyter, Visiting Physician, Missouri Baptist Hospital, St. Louis: "Biliary Cholesterosis."

Dr. Horace W. Soper, St. Louis: "Treatment of Ulcerative Colitis" (Lantern Slides).

Dr. Curtis H. Lohr, Member of Staff, Jewish, Children's and Lutheran Hospitals, St. Louis: "Diagnostic Significance of Pneumoperitoneum in the Diagnosis of Intestinal Perforation in Typhoid Fever."

Dr. Charles H. Eyermann, Instructor in Clinical Medicine, Washington University School of Medicine, St. Louis: "Foods Commonly Implicated in the Causation of Allergic Symptoms" (Lantern Slides).

Dr. Paul C. Schnoebelen, Roentgenologist, Jewish Hospital, St. Louis: "Acute Intestinal Obstruction: Roentgen Ray Demonstration" (Lantern Slides).

The Session then adjourned *sine die*.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Tuesday, November 19, 10:00 a.m.

A Clinical Session, Medicine-Section B, was held at the Municipal Auditorium, Assembly Room No. 4, St. Louis, Dr. Edwin J. Schisler, St. Louis, presiding.

The following presentations were made:

DISEASES OF THE ENDOCRINE GLANDS

Dr. Edward A. Doisy, Professor of Biochemistry, St. Louis University School of Medicine, St. Louis: "Recent Investigations of the Ovarian Follicular Hormone" (Lantern Slides).

Dr. David P. Barr, Professor of Medicine, Washington University School of Medicine; Physician-in-Chief, Barnes Hospital, St. Louis: "The Significance of the Adrenocortical Syndrome."

Dr. Cyril M. MacBryde, Instructor in Medicine, Washington University School of Medicine, St. Louis: "Advances in the Dietary Management of Diabetes" (Lantern Slides).

Dr. H. A. Bulger, Assistant Professor of Medicine, Washington University School of Medicine, St. Louis: "Quality of Carbohydrates for Diabetic Diet" (Lantern Slides).

Dr. Goronwy O. Broun, Professor of Medicine, St. Louis University School of Medicine, St. Louis: "Sugar Tolerance and Insulin Sensitivity Studies with Particular Reference to Epilepsy" (Lantern Slides) (with Dr. J. J. DelVecchio).

Dr. Daniel L. Sexton, Senior Instructor in Medicine, St. Louis University School of Medicine, St. Louis: "What May Be Expected from Thyroid Therapy" (Charts and Slides).

Dr. John Zahorsky, Professor of Pediatrics, St. Louis University School of Medicine, St. Louis: "Overgrowth in Infants from Superalimentation" (Lantern Slides).

Dr. August A. Werner, Senior Instructor in Medicine, St. Louis University School of Medicine, St. Louis: "Infantilism" (Lantern Slides).

Dr. Louis H. Behrens, St. Louis, read by Dr. David P. Barr, St. Louis: "Pre-adolescent Gigantism—'The Alton Giant': A Six-Year Clinical Study" (Lantern Slides).

DISEASES OF THE BLOOD

Dr. Samuel B. Grant, Assistant in Medicine, Washington University School of Medicine, St. Louis: "Familial Purpura" (Lantern Slides).

The Session adjourned until 2:00 p.m.

Tuesday, November 19, 2:00 p.m.

The Clinical Session reconvened in the Municipal Auditorium, Assembly Room No. 4, Dr. Armand D. Fries, St. Louis, presiding.

The following presentations were made:

Dr. Llewellyn Sale, Instructor in Medicine, Washington University School of Medicine, St. Louis: "Infectious Mononucleosis: The Role of Heterophile Antibodies in the Diagnosis."

Dr. Jerome E. Cook, Instructor in Clinical Medicine, Washington University School of Medicine, St. Louis: "The Diagnosis of Polycythemia" (Lantern Slides).

Dr. A. R. Shreffler, Instructor in Medicine, St. Louis University School of Medicine, St. Louis: "Pernicious Anemia Following Gallbladder Disease."

Dr. R. B. H. Gradwohl, Pathologist, St. Louis County Hospital, St. Louis: "Schilling Methods" (Lantern Slides).

NEUROLOGY

Dr. James F. McFadden, Associate Professor of Nervous and Mental Diseases, St. Louis University School of Medicine, St. Louis: "The Neuroses."

Dr. Albert Kuntz, Professor of Micro-anatomy, St. Louis University School of Medicine, St. Louis: "The Role of the Autonomic Nerves in Referred Pain" (Lantern Slides).

Dr. William W. Graves, Director, Department of Neuro-psychiatry, St. Louis University School of Medicine, St. Louis: "The Clinical Significance of Inherited Variations: 1. The Types of Scapulae."

Dr. F. H. Ewerhardt, Assistant Professor of Medicine, Washington University School of Medicine, St. Louis: "Artificial Fever Therapy."

Dr. Alexander J. Kotkis, Senior Instructor in Internal Medicine, St. Louis University School of Medicine, St. Louis: "Personal Experimental and Clinical Experiences with Mecholyl Iontophoresis."

Dr. Augustin P. Munsch, Senior Instructor in Medicine, St. Louis University School of Medicine, St. Louis: "Arthritis" (Lantern Slides).

Dr. Thomas Findley, Jr., Instructor in Clinical Medicine, Washington University School of Medicine, St. Louis: "Clinical Implications of Recent Studies in Renal Physiology" (Lantern Slides).

Dr. Downey L. Harris, Pathologist, Frisco Hospital; Director of Rabies Clinic, St. Louis Health Department, St. Louis: "Rabies."

DERMATOLOGY

Dr. Joseph Grindon, Professor of Dermatology, St. Louis University School of Medicine, St. Louis: "(1) Wagner's Colloid Milium in a Negress; (2) Hyperkeratosis Congenita; (3) Papulo Necrotic Tuberculide Case Presentations."

The Session then adjourned *sine die*.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Tuesday, November 19, 10:00 a.m.

A Clinical Session, Surgery-Section A, was held at the Municipal Auditorium, Assembly Room No. 1, St. Louis, Dr. Charles D. O'Keefe, St. Louis, presiding.

The following presentations were made:

SYMPOSIUM ON CANCER

Dr. Quitman U. Newell, Associate Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis: "The Importance of An Organized Cancer Clinic."

Dr. Vilray P. Blair, Professor of Clinical Surgery, Washington University School of Medicine, St. Louis: "Cancer of the Mouth and Face" (Lantern Slides).

Dr. Wm. E. Sauer, Professor of Otolaryngology, St. Louis University School of Medicine, St. Louis: "Cancer of the Larynx."

Dr. Ellis Fischel, Associate Professor of Surgery, St. Louis University School of Medicine, St. Louis: "Cancer of the Breast."

Dr. Jacob J. Singer, Associate Professor of Clinical Medicine, Washington University School of Medicine, St. Louis: "Diagnostic Methods in Cancer of the Chest" (Lantern Slides).

Dr. L. R. Sante, Professor of Radiology, St. Louis University School of Medicine, St. Louis: "Elusive Carcinomatous Lesions of the Gastro-intestinal Tract" (Lantern Slides).

Dr. Cyrus E. Burford, Professor of Urology, St. Louis University School of Medicine, St. Louis: "Cancer of the Genito-Urinary Tract" (Lantern Slides).

Dr. Kevin C. Morrin, Assistant in Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis: "The Treatment of Uterine Carcinoma" (Lantern Slides).

Dr. A. N. Arneson, Instructor in Radiology and in Obstertics and Gynecology, Washington University School of Medicine, St. Louis: "X-Ray Therapy in Cancer" (Lantern Slides).

Dr. Edwin C. Ernst, Chief of Department of Radiology, Bernard Free Skin and Cancer Hospital and DePaul Hospital, St. Louis: "Radium Therapy in Cancer" (Lantern Slides).

The Session adjourned until 2:00 p.m.

Tuesday, November 19, 2:00 p.m.

The Clinical Session reconvened in the Municipal Auditorium, Assembly Room No. 1, Dr. Quitman U. Newell, St. Louis, presiding.

The following presentations were made:

OBSTETRICS AND GYNECOLOGY

Dr. Otto H. Schwarz, Professor of Obstetrics and Gynecology, Washington University School of Medicine, St. Louis: "Hydatidiform Mole-Chorio-Epithelioma."

Dr. Frederick J. Taussig, Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis: "Leukoplakia of Vulva—Its Relation to the Development of Cancer."

Dr. G. D. Royston, Associate Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis: "Post-Partum Care with Particular Reference to Lacerations" (Lantern Slides).

Dr. Carl R. Wegner, Instructor in Obstetrics and Gynecology, Washington University School of Medicine, St. Louis: "Eclampsia."

Dr. Harry S. Crossen, Professor Emeritus of Clinical Obstetrics and Gynecology, and Dr. Robert J. Crossen, Instructor in Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis: "Pelvic Endocrinology."

Dr. Samuel D. Soule, St. Louis: "Endometriosis" (Lantern Slides).

Dr. Frank P. McNalley, Assistant Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis: "Etiology, Diagnosis and Treatment of Ectopic Pregnancy."

Dr. George Gellhorn, Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis: "The Uses of Colposcopy with a Demonstration of a New Colposcope."

Dr. William H. Vogt, Professor of Clinical Obstetrics and Gynecology, St. Louis University School of Medicine, St. Louis: "Cesarean Section."

Dr. E. Lee Dorsett, Assistant Professor of Clinical Obstetrics and Gynecology, St. Louis University School of Medicine, St. Louis: "Internal Podalic Version" (Lantern Slides).

Dr. William Carl Stude, Senior Instructor in Obstetrics and Gynecology, St. Louis University School of Medicine, St. Louis:

"Some Points of Importance in the Performance of Total Abdominal Hysterectomy" (Lantern Slides).

Dr. Percy H. Swahlen, Associate Professor of Obstetrics and Gynecology, St. Louis University School of Medicine, St. Louis: "Placental Development in Triplet Pregnancy."

Dr. Solomon A. Weintraub, Assistant Professor of Gynecology and Obstetrics, St. Louis University School of Medicine, St. Louis: "The Ovary of Pregnancy" (Lantern Slides).

Dr. Edgar Schmitz, Gynecologist to City and St. Luke's Hospitals, St. Louis: "The Repair of Vesicovaginal Fistula."

The Session then adjourned *sine die*.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Tuesday, November 19, 10:00 a.m.

A Clinical Session, Surgery-Section B, was held at the Municipal Auditorium. Assembly Room No. 2, St. Louis, Dr. Neil S. Moore, St. Louis, presiding.

The following presentations were made:

Dr. Robert D. Alexander, Assistant Professor of Surgery and Head of the Section on Proctology, St. Louis University School of Medicine, St. Louis: "Proctology for the Practitioner."

Dr. Charles F. Sherwin, Associate Professor of Surgery, St. Louis University School of Medicine, St. Louis: "An Original Improved Method of Repairing Old Muscle Tendon Avulsions" (Lantern Slides).

Dr. James L. Mudd, Senior Instructor in Surgery and Head of the Section on Chest Surgery, St. Louis University School of Medicine, St. Louis: "Surgical Treatment of Pulmonary Tuberculosis" (Moving Pictures).

Dr. William P. Glennon, Professor of Surgery, St. Louis University School of Medicine, St. Louis: "Goiter Surgery" (Lantern Slides).

Dr. Louis Rassieur, Professor of Surgery, St. Louis University School of Medicine, St. Louis: "Splenectomy for Splenic Anemia" (Lantern Slides and Patients).

Dr. William T. Coughlin, Professor of Surgery and Director of the Department, St. Louis University School of Medicine, St. Louis: "Tumors Below the Tentorium" (Lantern Slides and Patients).

Dr. Edward Vernon Mastin, Instructor in Surgery, St. Louis University School of Medicine, St. Louis: "A Consideration of the Toxic Thyroid."

The Session adjourned until 2:00 p.m.

Tuesday, November 19, 2:00 p.m.

The Clinical Session reconvened in the Municipal Auditorium, Assembly Room No. 2, Dr. Frederick A. Jostes, St. Louis, presiding.

The following presentations were made:

Dr. John R. Caulk, Professor of Clinical Genito-Urinary Surgery, Washington University School of Medicine, St. Louis: "Obstruction at the Bladder Neck in Infants and Children" (Lantern Slides).

Dr. Ernest Sachs, Professor of Clinical Neurological Surgery, Washington University School of Medicine, St. Louis: "On the Results of Treatment of Jacksonian Epilepsy" (Lantern Slides).

Dr. Dalton Keats Rose, Assistant Professor of Clinical Genito-Urinary Surgery, Washington University School of Medicine, St. Louis: "Renal Sympathectomy in Nephroptosis" (Lantern Slides).

Dr. Robert Elman, Assistant Professor of Clinical Surgery, Washington University School of Medicine, St. Louis: "Blood Amylase in the Diagnosis of Acute Interstitial Pancreatitis" (Lantern Slides).

Dr. Peter Heinbecker, Assistant Professor of Clinical Surgery, Washington University School of Medicine, St. Louis: "A Critique of Certain Surgical Procedures Employed in the Treatment of Angina Pectoris and Peripheral Vascular Disease."

Dr. Warren H. Cole, Assistant Professor of Clinical Surgery, Washington University School of Medicine, St. Louis: "Lymphogranuloma Inguinale" (Lantern Slides).

Dr. Duff S. Allen, Assistant Professor of Clinical Surgery, Washington University School of Medicine, St. Louis: "The Effect of Thyriodectomy Upon Circulation."

Dr. Nathan A. Womack, Instructor in Clinical Surgery, Washington University School of Medicine, St. Louis: "Surgical Treatment of Hypoglycemia."

Dr. Warren R. Rainey, Instructor in Clinical Surgery, Washington University School of Medicine, St. Louis: "Preservation of the Anal Sphincter in Operation for Rectal Fistula in the Female" (Lantern Slides).

Dr. Major G. Seelig, Professor of Clinical Surgery, Washington University School of Medicine, St. Louis: "Some of the Accomplishments of the Last Quarter of a Century of Cancer Research."

Dr. Fred W. Bailey, Surgeon, Deaconess Hospital, St. Louis: "The Acute Abdomen: The Value of Early Diagnosis" (Lantern Slides).

Dr. J. William Thompson, Head of the Soper-Mills Clinic Surgical Division, St. Louis: "End Results in Surgical Management of Gastro-Intestinal Carcinoma with Presentation of Cases" (Lantern Slides and Patients).

Dr. Marion L. Klinefelter, Member of Staff, Missouri Baptist, Jewish and Deaconess Hospitals; Consultant, Frisco Hospital, St. Louis: "Fractures of the Hip Intra and Extra Capsular."

Dr. Willard Bartlett, Assistant Professor of Clinical Surgery, Washington University School of Medicine, St. Louis: "The Goiter Patient Unsuitable to Thyroidectomy" (Lantern Slides and Patients).

The Session then adjourned *sine die*.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Tuesday, November 19, 10:00 a.m.

A Clinical Session, Ophthalmology and Otolaryngology, was held at the Municipal Auditorium, Opera House, St. Louis, Dr. L. W. Dean and Dr. L. T. Post, St. Louis, presiding.

The following presentations were made:

PRESENTED BY WASHINGTON UNIVERSITY SCHOOL OF MEDICINE

Dr. Arthur W. Proetz, Associate Professor of Clinical Otolaryngology, St. Louis: "Physiology of the Nose."

Dr. Harry W. Lyman, Associate Professor of Clinical Otolaryngology, St. Louis: "Spheno Palatine Neuralgia Simulating Tic Douloureux."

Dr. James B. Coston, Assistant Professor of Clinical Otolaryngology, St. Louis: "Mandibular Joint Changes and Associated Symptoms."

Dr. Bernard J. McMahon, Assistant Professor of Clinical Otolaryngology, St. Louis: "Mode of Infection in Sinusitis and Otitis Media."

Dr. Louis J. Birsner, Assistant Professor of Clinical Otolaryngology, St. Louis: "Cervical Approach to the Mediastinum."

Dr. Bennett Y. Alvis, Instructor in Clinical Ophthalmology, St. Louis: "Newer Ocular Therapeutics."

Dr. H. Rommel Hildreth, Instructor in Clinical Ophthalmology, St. Louis: "Regional Anesthesia in Ophthalmic Surgery" (Lantern Slides).

Dr. William E. Shahan, Professor in Clinical Ophthalmology, St. Louis: "Therapeutic Adjuvants."

The Session adjourned until 2:00 p.m.

Tuesday, November 19, 2:00 p.m.

The Clinical Session reconvened in the Municipal Auditorium, Opera House, Dr. L. T. Post, St. Louis, presiding.

The following presentations were made:

Dr. Meyer Wiener, Professor of Clinical Ophthalmology, St. Louis: "Surgical Procedures" (Illustrated).

PRESENTED BY ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE

Dr. Wm. H. Buedde and Dr. Wm. E. Sauer, St. Louis, presiding.

Dr. Joseph M. Keller, Professor of Ophthalmology, St. Louis: "Special Considerations on Ocular Pathology Related to Glaucoma."

Dr. John Green, Professor of Ophthalmology, St. Louis: "Ocular Therapeutics in Different Types of Glaucoma."

Dr. John F. Hardesty, Associate Professor of Ophthalmology, and Dr. Maurice L. Greene, Senior Instructor in Ophthalmology, St. Louis: "Extra Ocular Therapeutics in Glaucoma."

Dr. Carl T. Eber, Instructor in Ophthalmology, St. Louis, read by Dr. John McGrath, St. Louis: "Suggestions for Surgical Intervention in Glaucoma" (Moving Pictures).

Dr. Kermit Christensen, Senior Instructor in Micro-anatomy, St. Louis: "Recent Studies in the Innervation of the Nasal Mucosa and Paranasal Sinuses" (Lantern Slides).

Dr. E. Lee Myers, Assistant Professor of Otolaryngology, St. Louis: "Treatment of Esophageal Strictures" (Lantern Slides).

Dr. V. Visscher Wood, Instructor in Otolaryngology, St. Louis: "Post Tonsillectomy Hemorrhage: Various Methods of Control."

Dr. William M. Smit, Senior Instructor of Otolaryngology, St. Louis: "The Importance of Excluding Syphilis in the Diagnosis of Diseases of the Ear, Nose and Throat."

The Session then adjourned *sine die*.

GENERAL CLINICAL SESSIONS

Four Sessions Meeting Concurrently Representing All Specialties.

Wednesday, November 20, 9:15 a.m.

Municipal Auditorium, Assembly Room No. 1, St. Louis, Dr. E. G. Ballenger, Atlanta, Georgia, presiding.

The following presentations were made:

Dr. Charles L. Hartsock, Cleveland Clinic, Cleveland, Ohio: "The Symptomatic Mimicry of Gastro-Intestinal Diseases by Lesions of the Genito-Urinary Tract."

Dr. Gilbert J. Thomas, Assistant Professor of Urology, University of Minnesota, Graduate School of Medicine, and President-Elect, American Urological Association, Minneapolis, Minnesota, and Dr. T. J. Kinsella, Surgeon, Glen Lake Sanatorium, Oak Terrace, Minnesota: "Surgical Treatment of Genito-Urinary Tuberculosis."

Dr. H. E. Robertson, Professor of Pathology, University of Minnesota, Graduate School of Medicine, Rochester, Minnesota: "The Pathology and Pathogenesis of Duodenal Ulcer" (Lantern Slides).

Dr. Thomas G. Orr, Professor of Surgery, University of Kansas School of Medicine, Kansas City, Missouri: "The Treatment of Peritonitis" (Moving Pictures).

Dr. Alton Ochsner, Professor of Surgery, Tulane University School of Medicine, New Orleans, Louisiana: "Postoperative Treatment" (Lantern Slides).

Dr. E. Lee Miller, President, Missouri State Medical Association, Kansas City, Missouri: "How Shall We Manage the Patient with Acute Cholecystitis?"

Dr. Frank D. Dickson, President, American Academy of Orthopedic Surgeons, Kansas City, Missouri: "Low Back Pain with Particular Reference to Part Played by Congenital Abnormalities" (Lantern Slides).

The Session then adjourned *sine die*.

Wednesday, November 20, 9:15 a.m.

Municipal Auditorium, Assembly Room No. 2, St. Louis, Dr. Frank K. Boland, Atlanta, Georgia, presiding.

The following presentations were made:

Dr. John Silas Lundy, Professor of Anesthesia, University of Minnesota, Graduate School of Medicine, Rochester, Minnesota: "The Conservative Use of Anesthetics: Agents and Methods" (Lantern Slides).

Dr. James Tate Mason, President-Elect, American Medical Association, Seattle, Washington: "Some Modifications of the Technic in Surgery of the Common Duct" (Lantern Slides).

Dr. Louis George Herrmann, Assistant Professor of Surgery, University of Cincinnati College of Medicine, Cincinnati, Ohio: "Recent Advances in Diagnosis and Treatment of the More Common Type of Arterial Diseases of the Extremities" (Lantern Slides).

Dr. Isaac A. Bigger, Professor of Surgery, Medical College of Virginia, Richmond, Virginia: "The Diagnosis of Heart Wounds" (Lantern Slides).

Dr. Daniel Fiske Jones, Boston, Massachusetts: "The Diagnosis and Treatment of Carcinoma of the Rectum and Colon" (Lantern Slides).

Dr. Charles A. Waters, President-Elect, American Roentgen Ray Society, Baltimore, Maryland: "The Treatment of Inoperable Deepseated Malignancies" (Lantern Slides).

The Session then adjourned *sine die*.

Wednesday, November 20, 9:15 a.m.

Municipal Auditorium, Assembly Room No. 3, St. Louis, Dr. Ernest B. Bradley, Lexington, Kentucky, presiding.

The following presentations were made:

Dr. H. B. Wilmer, Director of Medical Services, Abington Memorial Hospital; Dr. M. M. Miller, Director of Allergic Clinic, Abington Memorial Hospital; and Dr. J. T. Beardwood, Physician-in-Chief, Metabolic Service, Abington Memorial Hospital, Philadelphia, Pennsylvania: "Recent Advances in the Diagnosis and Treatment of Allergic Diseases with Special Reference to Sugar Tolerance and Metabolism" (Lantern Slides).

Dr. William Frederick Lorenz, Professor of Neurology and Psychiatry, University of Wisconsin Medical School, Madison, Wisconsin: "Treatment of Neurosyphilis" (Lantern Slides).

Dr. E. R. Kellersberger, Bibango, Congo Belje, Africa: "Sleeping Sickness: A Clinical Study" (Lantern Slides).

Dr. James Alex Miller, Professor of Clinical Medicine, Columbia University College of Physicians and Surgeons, and President, American College of Physicians, New York, New York: "Chronic Pulmonary Disease."

Dr. Henry J. John, Cleveland, Ohio: "Remissions in Diabetes."

Dr. William D. Sansum, Santa Barbara, California: "The Favorite Influence of Higher (Adequate) Carbohydrate Diets on the Blood Pressure Problem in Diabetes."

Dr. James S. McLester, President, American Medical Association, Birmingham, Alabama: "The Emotional Factor in Clinical Problems."

The Session then adjourned *sine die*.

Wednesday, November 20, 9:15 a.m.

Municipal Auditorium, Assembly Room No. 4, St. Louis, Dr. Hugh Leslie Moore, Dallas, Texas, presiding.

The following presentations were made:

Dr. Wilburt C. Davison, Dean and Professor of Pediatrics, Duke University School of Medicine, Durham, North Carolina: "Poliomyelitis."

Dr. Joseph Brennemann, Chief of Staff, Children's Memorial Hospital, Chicago, Illinois: "Appendicitis in Children."

Dr. Douglas P. Murphy, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania: "Congenital Malformation: A Study of More Than 500 Families Each Having at Least One Defective Child" (Lantern Slides).

Dr. Paul Titus, Pittsburg, Pennsylvania: "The Importance of Routine Post-natal and Post-puerperal Examinations" (Lantern Slides).

Dr. Catherine MacFarlane, Professor of Gynecology, Woman's College of Pennsylvania, and President-Elect, Medical Women's National Association, Philadelphia, Pennsylvania: "Dysfunctional Uterine Bleeding."

Dr. Charles W. Green (Ph.D.), Professor of Physiology, University of Missouri School of Medicine, Columbia, Missouri: "The Nervous Control of the Coronary Circulation and Its Clinical Significance" (Lantern Slides).

Dr. Louis Faugeres Bishop, Jr., New York, New York: "Recent Advances in Diagnosis and Treatment of Coronary Thrombosis."

The Session then adjourned *sine die*.

SECTION ON MEDICINE

Officers

Chairman—Dr. George Herrmann, Galveston, Texas.
Vice-Chairman—Dr. Chas. Hartwell Cocke, Asheville, North Carolina.
Secretary—Dr. William B. Porter, Richmond, Va.

Thursday, November 21, 2:00 p. m.

The Section met in the Municipal Auditorium, Assembly Room No. 3, St. Louis, Missouri, and was called to order by the Chairman, Dr. George Herrmann, Galveston, Texas, who presided.

Paper by Dr. Henry M. Winans and Dr. E. M. Perry, Dallas, Texas, entitled "Deficiency Polyneuritis," was read by Dr. Winans, and was discussed by Dr. Hugh J. Morgan, Nashville, Tennessee; Dr. J. K. Hall, Richmond, Virginia; and Dr. G. R. Coghill, New Haven, Connecticut.

Dr. Benj. M. Baker, Jr., Baltimore, Maryland, read a paper entitled "The Relation of Syphilis to Nephritis," which was discussed by Dr. William B. Porter, Richmond, Virginia, and Dr. D. C. Smith, University, Virginia.

Dr. J. F. Hamilton, Memphis, Tennessee, read a paper entitled "Diagnosis and Management of Gonococcal Arthritis, with Emphasis on the Use of Ammonium O-Iodoxybenzoate (Amiodoxyl)" (Lantern Slides), which was discussed by Dr. Willis C. Campbell, Memphis, Tennessee, and Dr. John B. Youmans, Nashville, Tennessee.

Dr. E. Rankin Denny, Tulsa, Oklahoma, read a paper entitled "Blood Cholesterol Values in Hypometabolism" (Lantern Slides), which was discussed by Dr. Hugh Jeter, Oklahoma City, Oklahoma, and Dr. C. W. Dowden, Louisville, Kentucky.

Paper by Dr. Samuel S. Riven and Dr. William L. Fleming, Nashville, Tennessee, entitled "Acute Aseptic Meningitis" (Lantern Slides), was read by Dr. Riven and was discussed by Dr. T. M. Rivers, New York, New York, and Dr. E. J. Schisler, St. Louis, Missouri.

The Chairman appointed the following Nominating Committee: Dr. Ernest B. Bradley, Lexington, Kentucky; Dr. Hugh J. Morgan, Nashville, Tennessee; and Dr. Glenville Giddings, Atlanta, Georgia.

The Section adjourned until 9:00 a. m. Friday.

Friday, November 22, 9:00 a. m.

The Section met in the Municipal Auditorium, Assembly Room No. 3, St. Louis, Missouri, and was called to order by the Chairman, Dr. Herrmann, who presided.

SYMPOSIUM ON HEART FAILURE

Dr. George Herrmann, Galveston, Texas, read his Chairman's Address entitled "Some Biochemical Factors in Heart Failure" (Lantern Slides).

Dr. Tinsley R. Harrison, Nashville, Tennessee, read a paper entitled "The Pathogenesis of Circulatory Failure."

Dr. Frank N. Wilson, Ann Arbor, Michigan, read a paper entitled "Disturbance of Cardiac Mechanisms in Relation to Heart Failure."

Dr. James E. Paullin, Atlanta, Georgia, read a paper entitled "Treatment of Congestive Heart Failure."

Dr. William R. Houston, Austin, Texas, read a paper entitled "Cardiac Neuroses."

The Symposium was discussed by Dr. David P. Barr, St. Louis, Missouri; Dr. Hugh J. Morgan, Nashville, Tennessee; Dr. Virgil E. Simpson, Louisville, Kentucky; Dr. T. E. Wilson, Jackson, Mississippi; and Dr. John W. Scott, Lexington, Kentucky.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. William B. Porter, Richmond, Virginia.
Vice-Chairman—Dr. O. P. J. Falk, St. Louis, Missouri.
Secretary—Dr. John B. Youmans, Nashville, Tennessee.

The Section then adjourned *sine die*.

SECTION ON PEDIATRICS

Officers

Chairman—Dr. Luther W. Holloway, Jacksonville, Florida.
Vice-Chairman—Dr. Lucius D. Hill, Jr., San Antonio, Texas.
Secretary—Dr. M. Hines Roberts, Atlanta, Georgia.

Wednesday, November 20, 2:00 p. m.

The Section met in the Municipal Auditorium, Assembly Room No. 3, St. Louis, Missouri, and was called to order by the Chairman, Dr. Luther W. Holloway, Jacksonville, Florida, who presided.

Dr. W. Pierre Robert, Vicksburg, Mississippi, read a paper entitled "Malaria in Children," which was discussed by Dr. Daniel L. Seckinger, Washington, D. C.; Dr. N. C. Womack, Jackson, Mississippi; Dr. E. Clay Mitchell, Memphis, Tennessee; Dr. J. Mac Bell, Mobile, Alabama; and in closing by the essayist.

Dr. Luther W. Holloway, Jacksonville, Florida, read his Chairman's Address entitled "Destructive Ophthalmia Complicating an Unusual Eruptive Fever."

Paper by Dr. Robert A. Strong and Dr. Alton Ochsner, New Orleans, Louisiana, entitled "Congenital Hypertrophic Pyloric Stenosis" (Lantern Slides), was read by Dr. Strong, and was discussed by Dr. M. B. Clopton, St. Louis, Missouri; Dr. Roland Hill, St. Louis, Missouri; Dr. John Zahorsky, St. Louis, Missouri; Dr. Benjamin Bashinski, Macon, Georgia; and in closing by the essayists.

Dr. Robert Boyd McIver, Jacksonville, Florida, read a paper entitled "Surgery of the Urinary Tract in Children," which was discussed by Dr. John R. Caulk, St. Louis, Missouri, and Dr. Rex E. Van Duzen, Dallas, Texas.

Dr. J. B. Stone, Richmond, Virginia, read a paper entitled "Children's Teeth in Relation to Pediatric Practice" (Lantern Slides), which was discussed by Dr. E. Clay Mitchell, Memphis, Tennessee; Dr. Wm. Weston, Jr., Columbia, South Carolina; Dr. J. R. Lemmon, Amarillo, Texas; and in closing by the essayist.

Dr. Herbert J. Rinkel, Kansas City, Missouri, read a paper entitled "Diagnostic Measures in Atopic Infantile Eczema" (Lantern Slides), which was discussed by Dr. Carroll M. Pounders, Oklahoma City, Oklahoma; Dr. Hugh L. Dwyer, Kansas City, Missouri; and in closing by the essayist.

Section Clinic. Case Reports (ten minutes each for reporting cases and five minutes for discussion).

(a) "Congenital Pemphigus Neonatorum." Case reported by Dr. Wm. Weston, Jr., Columbia, South Carolina.

(b) "Case Presenting Intraocular and Other Evidences of Increased Intracranial Pressure without Brain Tumor." Case reported by Dr. Clifford L. Lamar, Birmingham, Alabama, and discussed by Dr. Wilmot S. Littlejohn, Birmingham, Alabama.

The Chairman appointed the following Nominating Committee: Dr. D. Lesesne Smith, Spartanburg, South Carolina; Dr. Horton Casparis, Nashville, Tennessee; and Dr. Alfred A. Walker, Birmingham, Alabama.

The Section adjourned until 2:00 p. m. Thursday.

Thursday, November 21, 2:00 p. m.

The Section met in the Municipal Auditorium, Assembly Room No. 3, St. Louis, Missouri, and was called to order by the Chairman, Dr. Holloway, who presided.

Dr. Carroll M. Pounders, Oklahoma City, Oklahoma, read a paper entitled "Purpura in Children," which was discussed by Dr. J. H. Park, Jr., Houston, Texas; Dr. Jean V. Cooke, St. Louis, Missouri; Dr. F. M. Duffy, Enid, Oklahoma; Dr. Harvey F. Garrison, Jackson, Mississippi; and in closing by the essayist.

Dr. Aldert S. Root, Raleigh, North Carolina, read a paper entitled "The Poliomyelitis Epidemic in North Carolina" (Lantern Slides), which was discussed by Dr. W. W. Waddell, University, Virginia; Dr. T. C. Hempelmann, St. Louis, Missouri; Dr. D. Lesesne Smith, Spartanburg, South Carolina; and Dr. G. Foard McGinnes, Richmond, Virginia.

Dr. George M. Lyon, Huntington, West Virginia, read a paper entitled "Medical Participation in a School Health Program" (Lantern Slides), which was discussed by Dr. Borden Veeder, St. Louis, Missouri; Dr. Horton Casparis, Nashville, Tennessee; Dr. Walter E. Vest, Huntington, West Virginia; and in closing by the essayist.

Dr. W. L. Funkhouser, Atlanta, Georgia, read a paper entitled "Medical Supervision of Summer Camps" (Lantern Slides), which

was discussed by Dr. C. H. Hall, Oklahoma City, Oklahoma; Dr. Hugh McCulloch, St. Louis, Missouri; and in closing by the essayist.

Dr. Philip F. Barbour, Louisville, Kentucky, read a paper entitled "Acute Appendicitis in Children," which was discussed by Dr. J. Buren Sidbury, Wilmington, North Carolina; Dr. Roy E. de la Houssaye, New Orleans, Louisiana; Dr. Warren H. Cole, St. Louis, Missouri; and in closing by the essayist.

Dr. J. G. Lyerly, Jacksonville, Florida, read a paper entitled "Brain Tumors in Children" (Lantern Slides), which was discussed by Dr. George H. Garrison, Oklahoma City, Oklahoma; and in closing by the essayist.

Dr. L. L. Lee, San Antonio, Texas, read a paper entitled "Two Unusual Cases of Anemia in Children" (Lantern Slides and Moving Pictures), which was discussed by Dr. J. Mac Bell, Mobile, Alabama.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. M. Hines Roberts, Atlanta, Georgia.
Vice-Chairman—Dr. T. C. Hempelmann, St. Louis, Missouri.
Secretary—Dr. Hughes Kennedy, Birmingham, Alabama.

The Section then adjourned *sine die*.

SECTION ON GASTROENTEROLOGY

Officers

Chairman—Dr. Walter E. Vest, Huntington, West Virginia.
Vice-Chairman—Dr. Harry E. Murry, Texarkana, Arkansas.
Secretary—Dr. James Alto Ward, Birmingham, Alabama.

Wednesday, November 20, 2:00 p. m.

The Section met in the Municipal Auditorium, Assembly Room No. 4, St. Louis, Missouri, and was called to order by the Chairman, Dr. Walter E. Vest, Huntington, West Virginia, who read his Chairman's Address entitled "Gastro-Intestinal Symptoms of Renal Conditions."

Dr. George E. Eusterman, Professor of Medicine, Graduate School of Medicine, University of Minnesota, Rochester, Minnesota, read a paper entitled "The Gastritis Problem" (Lantern Slides).

Dr. Harold Bowcock, Atlanta, Georgia, read a paper entitled "The Internist's Attitude Toward Unusual X-Ray Findings in the Appendix Area," which was discussed by Dr. Henry M. Winans, Dallas, Texas, and Dr. Trimble Johnson, Atlanta, Georgia.

Dr. Donovan C. Browne, New Orleans, Louisiana, read a paper entitled "Absorption from the Pathologic Colon" (Lantern Slides), which was discussed by Dr. Joseph W. Larimore, St. Louis, Missouri, and Dr. Jerome S. Levy, Little Rock, Arkansas.

Dr. Marion T. Davidson, Birmingham, Alabama, read a paper entitled "The Relation of Allergy to Gastro-enterology," which was discussed by Dr. J. P. Henry, Memphis, Tennessee; Dr. C. H. Eyermann, St. Louis, Missouri; Dr. Horace W. Soper, St. Louis, Missouri; and in closing by the essayist.

Dr. W. Earle Drennen, Birmingham, Alabama, read a paper entitled "Diet and Surgery in the Cure of Gastric and Duodenal Ulcers," which was discussed by Dr. A. L. Levin, New Orleans, Louisiana.

Dr. Leslie T. Gager, Washington, D. C., read a paper entitled "The Cardiovascular Aspects of Epigastric Pain."

The Chairman appointed the following Nominating Committee: Dr. E. B. Freeman, Baltimore, Maryland; Dr. Marion T. Davidson, Birmingham, Alabama; and Dr. Hugh J. Morgan, Nashville, Tennessee.

The Section then adjourned until 2:00 p. m. Thursday.

Thursday, November 21, 2:00 p. m.

The Section met in the Municipal Auditorium, Assembly Room No. 4, St. Louis, Missouri, and was called to order by the Chairman, Dr Vest, who presided.

Dr. Julian E. Gammon, Jacksonville, Florida, read a paper entitled "Chronic Infectious Atrophic Proliferative Rheumatoid Arthritis" (Lantern Slides), which was discussed by Dr. F. L. Fort, Jacksonville, Florida, and Dr. A. P. Munsch, St. Louis, Missouri.

Dr. Marvin Corlette, Nashville, Tennessee, read a paper entitled "A Clinical Study of Vitamin C Excretion" (Lantern Slides), which was discussed by Dr. William W. Rucks, Oklahoma City, Oklahoma.

Dr. Jerome S. Levy, Little Rock, Arkansas, read a paper entitled "Treatment of the Irritable Colon," which was discussed by Dr. A. L. Levin, New Orleans, Louisiana; Dr. J. Russell Verbrycke, Jr., Washington, D. C.; Dr. Edwin J. Schisler, St. Louis, Missouri; Dr. M. D. Levy, Houston, Texas; Dr. Donovan C. Browne, New Orleans, Louisiana; and in closing by the essayist.

Dr. Lay Martin, Baltimore, Maryland, read a paper entitled "Gallbladder Disease: How Diagnose It? How Treat It?" which was discussed by Dr. Hugh J. Morgan, Nashville, Tennessee.

Dr. Harry E. Murry, Texarkana, Arkansas, read a paper entitled "The Stomach and Anemias," which was discussed by Dr. Benj. M. Baker, Jr., Baltimore, Maryland.

Dr. Arthur W. White, Oklahoma City, Oklahoma, read a paper entitled "Abdomen Conscious," which was discussed by Dr. Lea A. Riely, Oklahoma City, Oklahoma.

Dr. Walter E. Vest, Huntington, West Virginia, was elected a member of the Committee to help secure American members of the International Congress of Gastroenterology.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. James Alto Ward, Birmingham, Alabama.
Vice-Chairman—Dr. Lay Martin, Baltimore, Maryland.
Secretary—Dr. H. E. Murry, Texarkana, Arkansas.

The Section then adjourned *sine die*.

SECTION ON PATHOLOGY

Officers

Chairman—Dr. Harry C. Schmeisser, Memphis, Tennessee.
Vice-Chairman—Dr. T. C. Terrell, Fort Worth, Texas.
Secretary—Dr. Wiley D. Forbus, Durham, North Carolina.

Thursday, November 21, 9:00 a. m.

The Section met in the Municipal Auditorium, Room B, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. Harry C. Schmeisser, Professor of Pathology and Bacteriology, University of Tennessee College of Medicine, Memphis, Tennessee, who read his Chairman's Address entitled "Bilateral and Medial Aberrant Thyroid" (Lantern Slides).

Dr. T. M. Rivers, Rockefeller Institute for Medical Research, New York, New York, read a paper entitled "Certain Aspects of Pathological Lesions Caused by Viruses" (Lantern Slides).

Dr. H. A. McCordock, Associate Professor of Pathology, Washington University School of Medicine, St. Louis, Missouri, read a paper entitled "The Incidence and Possible Significance of Intranuclear Inclusions in the Salivary Glands of Children."

Dr. Ernest W. Goodpasture, Professor of Pathology, Vanderbilt University School of Medicine, Nashville, Tennessee, read a paper entitled "Intracellular Parasitism and Cytotropism of Viruses."

Paper by Dr. Rigney D'Aunoy, Professor of Pathology and Bacteriology, and Dr. Emmerich von Haam, Assistant Professor of Pathology, Louisiana State University Medical Center, New Orleans, Louisiana, entitled "The Virus of Lymphogranuloma Inguinale," was read by Dr. D'Aunoy.

Paper by Dr. Douglas H. Sprunt, Associate Professor of Pathology, and Dr. Donald S. Martin, Department of Bacteriology, Duke University School of Medicine, Durham, North Carolina, entitled "The Production of an Interstitial Mononuclear Pneumonia by the Bordet-Gengou Bacillus," was read by Dr. Sprunt.

The five papers above dealing with the virus problem were discussed by Dr. Emmerich von Haam, New Orleans, Louisiana; Dr. Ernest W. Goodpasture, Nashville, Tennessee; and Dr. H. A. McCordock, St. Louis, Missouri.

Dr. Foster M. Johns, President, American Society of Clinical Pathologists and Assistant Professor of Clinical Medicine, Tulane University School of Medicine, New Orleans, Louisiana, read a paper entitled "The Necessity of a Board for the Certification of Pathologists," which was discussed by Dr. Harry C. Schmeisser, Memphis, Tennessee; Dr. Wiley D. Forbus, Durham, North Carolina; Dr. Geo. T. Caldwell, Dallas, Texas; Dr. Frederick H. Lamb, Davenport, Iowa; Dr. A. S. Geordano, South Bend, Indiana; Dr. Ernest W. Goodpasture, Nashville, Tennessee; and Dr. Walter M. Simpson, Dayton, Ohio.

The Chairman appointed the following Nominating Committee: Dr. Foster M. Johns, New Orleans, Louisiana; Dr. Rigney

D'Aunoy, New Orleans, Louisiana; and Dr. Douglas H. Sprunt, Durham, North Carolina.

The Section then adjourned until 9:00 a. m. Friday.

Friday, November 22, 9:00 a. m.

The Section met in the Municipal Auditorium, Room B, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. Schmeisser, who presided.

Paper by Dr. Wm. F. Lake and Dr. A. J. Ayers, Atlanta, Georgia, entitled "Tumors of the Thyroid Gland: Report of Several Interesting and Unusual Cases," was read by Dr. Ayers, and was discussed by Dr. Herman Spitz, Nashville, Tennessee, and Dr. David H. Poer, Atlanta, Georgia.

Dr. Eugene R. Whitmore, Professor of Pathology, Georgetown University School of Medicine, Washington, D. C., read a paper entitled "Hypernephroid Tumors of the Kidney" (Lantern Slides), which was discussed by Dr. M. Pinson Neal, Columbia, Missouri, and Dr. J. Shelton Horsley, Richmond, Virginia.

Dr. Lucien Y. Dyrenforth, Jacksonville, Florida, read a paper entitled "Blood Groups and Allergy: A Statistical Review."

Paper by Dr. Robert B. Greenblatt, Medical Department, University of Georgia, Dr. Edgar R. Pund and Dr. Guy T. Bernard, Augusta, Georgia, entitled "The Benign Naevus—The Malignant Melanoma" (Lantern Slides), was read by Dr. Greenblatt.

Dr. L. Tate Carl, Instructor in Pathology, University of Tennessee College of Medicine, Memphis, Tennessee, read a paper entitled "Myoma Malignum of the Uterus: Report of Five Cases" (Lantern Slides).

Paper by Dr. I. D. Michelson, Associate Professor of Pathology and Bacteriology, and Dr. Anna D. Dulaney, Assistant Professor of Bacteriology, University of Tennessee College of Medicine, Memphis, Tennessee, entitled "Bacteriologic Study of a Diarrheal Epidemic in the New Born" (Lantern Slides), was read by Dr. Michelson, and was discussed by Dr. Robert W. Huntington, Jr., St. Louis, Missouri, and Dr. Wm. H. Harris, New Orleans, Louisiana.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. George T. Caldwell, Dallas, Texas.
Vice-Chairman—Dr. Wiley D. Forbus, Durham, North Carolina.
Secretary—Dr. Roy R. Kracke, Atlanta, Georgia.

The Section then adjourned *sine die*.

SECTION ON NEUROLOGY AND PSYCHIATRY

Officers

Chairman—Dr. Edgar F. Fincher, Jr., Atlanta, Georgia.
Vice-Chairman—*Dr. James H. Royster, Richmond, Virginia.
Secretary—Dr. Frank H. Luton, Nashville, Tennessee.

Wednesday, November 20, 2:00 p. m.

The Section met in the Municipal Auditorium, Room B, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. Edgar F. Fincher, Jr., Atlanta, Georgia, who read his Chairman's Address entitled "Ventriculography Via Anterior Horns," which was discussed by Dr. R. G. Spurling, Louisville, Kentucky; Dr. R. E. Semmes, Memphis, Tennessee; Dr. W. W. Graves, St. Louis, Missouri; and in closing by the essayist.

Dr. Spafford Ackerly, Louisville, Kentucky, read a paper entitled "Three Years' Affiliation of a Community Chest Mental Hygiene Clinic with the Department of Psychiatry in a Medical School," which was discussed by Dr. William E. Gardner, Louisville, Kentucky; Dr. Harry Andrews, Louisville, Kentucky; Dr. W. W. Young, Atlanta, Georgia; Dr. O. A. Schmid, Memphis, Tennessee; Dr. Wm. L. Nelson, St. Louis, Missouri; Dr. H. R. Unsworth, New Orleans, Louisiana; Dr. W. W. Graves, St. Louis, Missouri; and in closing by the essayist.

Dr. Franklin G. Ebaugh, Professor of Psychiatry, University of Colorado School of Medicine, Denver Colorado, read a paper entitled "The Present Status of Psychiatry in Medical Education."

Dr. James A. Brown, Houston, Texas, read a paper entitled "Some Clinical Aspects of Head Pain Associated with Sympathetic Phenomena," which was discussed by Dr. A. Hauser, Houston, Texas; Dr. Edgar F. Fincher, Jr., Atlanta, Georgia; and in closing by the essayist.

Dr. Salomon Katzenelbogen, Baltimore, Maryland, read a paper entitled "Disease and Functional Interrelationships," which was discussed by Dr. Lawrence F. Woolley, Towson, Maryland; and in closing by the essayist.

The Chairman appointed the following committee to prepare Resolutions on the death of *Dr. James H. Royster, Vice-Chairman of the Section: Dr. Howard R. Masters, Richmond, Virginia; Dr. James Asa Shield, Richmond, Virginia; and Dr. Beverley R. Tucker, Richmond, Virginia.

The Chairman appointed the following Nominating Committee: Dr. Wm. E. Gardner, Louisville, Kentucky; Dr. C. C. Turner, Memphis, Tennessee; and Dr. W. W. Young, Atlanta, Georgia.

The Section then adjourned until 2:00 p. m. Thursday.

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*DR. JAMES HUNT ROYSTER

The morning of March 22, 1935, had scarcely dawned when, as James Hunt Royster began the preparations for the day, a disastrous cardiac attack stilled this much beloved physician.

Born at Townsville, North Carolina, on June 26, 1892, he was raised and educated under the traditions of his state. At the University of North Carolina he prepared himself to follow in the footsteps of his father, obtaining his Bachelor's degree and Master's degree in 1913. Entering the Medical College of Virginia in the fall of the same year he studied for two sessions but succumbed to the tradition of his University tutelage and transferred to the Jefferson Medical College in Philadelphia where he graduated in 1917.

Dr. Royster possessed a keen interest, a sense of appreciation, an uncommon loyalty to his fellowman and to things contributing to life, whether derived from the school of nature or proffered from the university of science. While driving through the campus of the University of North Carolina but a few weeks before his sudden death, his head characteristically moved from one angle to another and his eyes became as bright as the day he matriculated while he told stories full of the spirit of love of his Alma Mater.

On his graduation from the Jefferson Medical College he volunteered his services during the World War and was commissioned as Lieutenant in the United States Navy, serving as medical officer on transports in the Mediterranean and North Seas. His modesty of his personal achievements forbade mention of them, although Dr. Royster braved many dangers and hardships while in the Navy. Many of his closest friends were not aware of his heroic attainments.

Just after his discharge from the Navy in 1921 he became an Associate Member of the Staff at Westbrook Sanatorium, Richmond, Virginia. Within a few years he had been elected as Instructor in Nervous and Mental Diseases at the Medical College of Virginia and received an appointment from Governor Harry Flood Byrd to his Advisory Board on Mental Hygiene. In these capacities he served with much ardour and proved a valuable aid and wise councillor.

In addition to these medical interests he was a member and frequent attendant of many medical societies. He was Secretary of the Section on Neurology and Psychiatry of the Southern Medical Association in 1933 and 1934, and held the office of Vice-Chairman at the time of his death.

In February, 1933, Dr. Royster married Miss Louise Moss, culminating a love since childhood.

So complete was his understanding of the difficulties of others and so sound his judgment that he became by nature a great physician to those to whom he ministered with comforting guidance. His fondness for the society of his friends, for the field, for the hunt, for the seashore and for travel revealed the vastness of his interests which gave him the spontaneous insight and ability to lend himself so freely to any occasion whether professional or social.

Though possessed of a reticent, unassuming manner, no friend or patient ever sought his counsel without feeling that elevating spirit which comes from contact with one who finds his greatest happiness through service to others. The world today can ill afford to lose from the ranks of men who serve with profound wisdom, sincerity, kindliness and understanding, yet who are also strong and courageous in their conviction of right and wrong and who are not to be swayed by adulation and plaudits of those who seek their own gain; such a man was James Hunt Royster.

Can poet's verse, or painter's brush, or sculptor's chisel ever portray a personality which so deeply ingratiated itself in the hearts of his fellowman?

HOWARD R. MASTERS, *Chairman*,
JAMES ASA SHIELD,
BEVERLY R. TUCKER,
Committee.

Thursday, November 21, 2:00 p. m.

The Section met in the Municipal Auditorium, Room B, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. Fincher, who presided.

Dr. Walter L. Treadway, Assistant Surgeon General, Division of Mental Hygiene, U. S. Public Health Service, Washington, D. C., read a paper entitled "The Significance and Content of Mental Health Administration," which was discussed by Dr. J. K. Hall, Richmond, Virginia; Dr. W. W. Young, Atlanta, Georgia; Dr. Chas. A. Barlow, Memphis, Tennessee; and Dr. W. J. Otis, New Orleans, Louisiana.

Dr. Cobb Pilcher, Nashville, Tennessee, read a paper entitled "Wandering Bullet in the Spinal Canal: Report of a Case" (Lantern Slides), which was discussed by Dr. Ernest Sachs, St. Louis, Missouri; Dr. R. E. Semmes, Memphis, Tennessee; Dr. Howard R. Masters, Richmond, Virginia; and Dr. Edgar F. Fincher, Jr., Atlanta, Georgia.

Dr. Carroll C. Turner, Memphis, Tennessee, read a paper entitled "The Neurologic and Psychiatric Manifestations of Malaria," which was discussed by Dr. Wm. L. Nelson, St. Louis, Missouri; Dr. H. R. Unsworth, New Orleans, Louisiana; Dr. Frank H. Luton, Nashville, Tennessee; Dr. James K. Hall, Richmond, Virginia; Dr. A. L. Skoog, Kansas City, Missouri; Dr. W. J. Otis, New Orleans, Louisiana; and in closing by the essayist.

Dr. Guy F. Witt, Dallas, Texas, read a paper entitled "Prolonged Barbiturate Narcosis in the Treatment of the Acute Psychoses" (Lantern Slides), which was discussed by Dr. Titus H. Harris, Galveston, Texas; Dr. A. Hauser, Houston, Texas; Dr. Wm. L. Nelson, St. Louis, Missouri; Dr. Salomon Katzenelbogen, Baltimore, Maryland; and in closing by the essayist.

Paper by Dr. James Asa Shield, Richmond, Virginia, entitled "A Discussion of Meniere's Syndrome in Head Injuries and Myxedema," was read by Dr. Beverley R. Tucker, Richmond, Virginia, and was discussed by Dr. W. W. Young, Atlanta, Georgia.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Frank H. Redwood, Norfolk, Virginia.
Vice-Chairman—Dr. Lawrence F. Woolley, Towson, Maryland.
Secretary—Dr. Frank H. Luton, Nashville, Tennessee.

The Section then adjourned *sine die*.

SECTION ON RADIOLOGY

Officers

Chairman—Dr. Franklin B. Bogart, Chattanooga, Tennessee.
Vice-Chairman—Dr. Roy G. Giles, Temple, Texas.
Secretary—Dr. Henry J. Walton, Baltimore, Maryland.

Thursday, November 21, 9:00 a. m.

The Section met in the Municipal Auditorium, Room A, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. Franklin B. Bogart, Chattanooga, Tennessee, who read his Chairman's Address entitled "Pulmonary Changes in Undulant Fever" (Lantern Slides).

Dr. R. P. O'Bannon, Fort Worth, Texas, read a paper entitled "Radiography of the Larynx and Pharynx" (Lantern Slides), which was discussed by Dr. Roy G. Giles, Temple, Texas; Dr. Chas. H. Heaccck, Memphis, Tennessee; and in closing by the essayist.

Paper by Dr. A. U. Desjardins, Assistant Professor of Radiology, Graduate School of Medicine, University of Minnesota, and Dr. Charles H. Watkins, Rochester, Minnesota, entitled "Abdominal Lymphoblastoma and Its Treatment by Irradiation," was read by Dr. Desjardins.

Dr. Joseph C. Bell, Louisville, Kentucky, read a paper entitled "The Roentgen Ray Examination of the Colon in the Study of Amebiasis" (Lantern Slides), which was discussed by Dr. Henry E. Meleney, Nashville, Tennessee; Dr. A. L. Levin, New Orleans, Louisiana; and in closing by the essayist.

Dr. D. A. Rhinehart, Little Rock, Arkansas, read a paper entitled "Concerning Stomachs That Are Upside Down" (Lantern Slides), which was discussed by Dr. Sherwood Moore, St. Louis, Missouri, and in closing by the essayist.

The Chairman appointed the following Nominating Committee: Dr. Sherwood Moore, St. Louis, Missouri; Dr. D. Y. Keith, Louisville, Kentucky; and Dr. Fred O. Coe, Washington, D. C.

The Section then adjourned until 9:00 a. m. Friday.

Thursday, November 21, 12:30 p. m.

The Section met in the Jefferson Hotel, Private Dining Room No. 8, St. Louis, Missouri, for an informal luncheon, followed by a round table discussion.

Friday, November 22, 9:00 a. m.

The Section met in the Municipal Auditorium, Room A, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. Bogart, who presided.

Dr. Fred O. Coe, Washington, D. C., moved that the rule be adopted by the Section permitting a Section to retain a Secretary for two or as many as three years, at the discretion of the Section. The motion was seconded and carried by a unanimous vote.

Dr. D. Y. Keith, Louisville, Kentucky, moved a rising vote of thanks be extended to the St. Louis members for their hospitality. The motion was seconded and carried.

Dr. Joseph T. McKinney, Roanoke, Virginia, read a paper entitled "Gastro-Intestinal Malignancies, X-Ray Findings" (Lantern Slides), which was discussed by Dr. Chas. H. Heacock, Memphis, Tennessee; Dr. D. Y. Keith, Louisville, Kentucky; and in closing by the essayist.

Paper by Dr. Manuel F. Madrazo, Mexico City, Mexico, entitled "The Use of X-Rays in the Preparation of the Anti-Typhus Vaccine," was read by title.

Dr. James M. Martin, Dallas, Texas, read a paper entitled "Radiation Therapy in Cancer of the Mouth, Pharynx and Larynx" (Lantern Slides) which was discussed by Dr. Fred M. Hodges, Richmond, Virginia; Dr. C. P. Rutledge, Shreveport, Louisiana; Dr. J. C. Dickinson, Tampa, Florida; Dr. E. C. Ernst, St. Louis, Missouri; and in closing by the essayist.

Section Clinic, conducted by Dr. A. U. Desjardins, Rochester, Minnesota. "Lymphoblastoma." Cases furnished and histories presented by Dr. L. R. Sante, St. Louis, Missouri.

Dr. W. R. Brooksher, Fort Smith, Arkansas, read a paper entitled "The Roentgen Study of Mediastinal Tumors," which was discussed by Dr. Ira H. Lockwood, Kansas City, Missouri.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Henry J. Walton, Baltimore, Maryland.
Vice-Chairman—Dr. James A. Meadows, Birmingham, Alabama.
Secretary—Dr. Roy G. Giles, Temple, Texas.

The Section then adjourned *sine die*.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

Officers

Chairman—Dr. J. N. Roussel, New Orleans, Louisiana.
Vice-Chairman—Dr. Charles C. Dennie, Kansas City, Missouri.
Secretary—Dr. C. F. Lehmann, San Antonio, Texas.

Tuesday, November 19

The Section had a Clinic and Presentation of Cases at the Bernard Free Skin and Cancer Hospital beginning at 10:00 a. m., followed by a luncheon at the Coronado Hotel at 1:00 p. m., the St. Louis Dermatological Society being the host. Following the luncheon there was a discussion of the cases.

Tuesday, November 19, 7:00 p. m.

The Section had its usual annual banquet, which was held in the Crystal Room of the Jefferson Hotel, the Chairman, Dr. J. N. Roussel, presiding.

Dr. Francis E. Senear, Professor of Dermatology, University of Illinois College of Medicine, Chicago, Illinois, gave the address of the evening entitled "The Evaluation of Serodiagnostic Test for Syphilis."

Wednesday, November 20, 2:00 p. m.

The Section met in the Municipal Auditorium, Room A, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. J. N. Roussel, New Orleans, Louisiana, who read his Chairman's Address entitled "Erythematous Lupus, Lichen Planus and Psoriasis: A Pathologic Trilogy, with Special Reference to the Treatment of Lichen Planus with Pituitrin."

Dr. Harry M. Robinson, Baltimore, Maryland, read a paper entitled "Intravenous Testing in Post-Arsphenamine Dermatitis" (Lantern Slides), which was discussed by Dr. Everett C. Fox, Dallas, Texas; Dr. Howard Hailey, Atlanta, Georgia; Dr. Clinton W. Lane, St. Louis, Missouri; Dr. G. V. Stryker, St. Louis, Missouri; and Dr. Thos. W. Murrell, Richmond, Virginia.

Dr. Adolph B. Loveman, Louisville, Kentucky, read a paper entitled "Monocytic Leukemia Cutis" (Lantern Slides), which was discussed by Dr. Charles O. King, Birmingham, Alabama, and Dr. M. F. Engman, Jr., St. Louis, Missouri.

Dr. Everett S. Lain, Oklahoma City, Oklahoma, read a paper entitled "Calcium Metabolism and Therapy in Dermatology," which was discussed by Dr. A. H. Lancaster, Knoxville, Tennessee; Dr. Lloyd W. Ketron, Baltimore, Maryland; Dr. Jack W. Jones, Atlanta, Georgia; Dr. Harry M. Robinson, Baltimore, Maryland; Dr. G. V. Stryker, St. Louis, Missouri; Dr. W. F. Spiller, Galveston, Texas; Dr. I. Warner Jenkins, Waco, Texas; Dr. D. W. Goldstein, Fort Smith, Arkansas; Dr. Richard S. Weiss, St. Louis, Missouri; and Dr. J. N. Roussel, New Orleans, Louisiana

Dr. M. T. Van Studdiford, New Orleans, Louisiana, read a paper entitled "Seborrhea and Its Effect on Ocular Diseases," which was discussed by Dr. E. R. Hall, Memphis, Tennessee; Dr. Jack W. Jones, Atlanta, Georgia; Dr. M. F. Engman, Jr., St. Louis, Missouri; Dr. Everett S. Lain, Oklahoma City, Oklahoma; Dr. Charles O. King, Birmingham, Alabama; Dr. Richard W. Fowlkes, Richmond, Virginia; Dr. Roy L. Kile, St. Louis, Missouri; Dr. C. F. Lehmann, San Antonio, Texas; and Dr. J. N. Roussel, New Orleans, Louisiana.

Dr. Earl B. Ritchie, San Antonio, Texas, read a paper entitled "A Comparison of the Kline and Noguchi Modification of the Wassermann Test," which was discussed by Dr. Richard S. Weiss, St. Louis, Missouri, and Dr. Francis E. Senear, Chicago, Illinois.

Paper by Dr. Lloyd W. Ketron and Dr. Leon Ginsburg, Baltimore, Maryland entitled "Tuberculosis of the Skin in the Negro" (Lantern Slides), was read by Dr. Ketron.

Dr. Howard Hailey, Atlanta, Georgia, read a paper entitled "The Diagnostic Value of a Skin Lesion: Tuberculid" (Lantern Slides).

Papers of Drs. Ketron and Ginsburg and Dr. Hailey were discussed by Dr. Howard King, Nashville, Tennessee; Dr. Richard S. Weiss, St. Louis, Missouri; Dr. Francis E. Senear, Chicago, Illinois; and Dr. J. R. Allison, Columbia, South Carolina.

The Chairman appointed the following Nominating Committee: Dr. A. H. Lancaster, Knoxville, Tennessee; Dr. Howard Hailey, Atlanta, Georgia; and Dr. Clinton W. Lane, St. Louis, Missouri.

The Section then adjourned until 2:00 p. m. Thursday.

Thursday, November 21, 2:00 p. m.

The Section met in the Municipal Auditorium, Room A, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. Roussel, who presided.

Paper by Dr W. F. Spiller and Dr. Emil H. Klatt, Galveston, Texas, entitled "Granuloma Annulare: Report of Unusual Case" (Lantern Slides), was read by Dr. Spiller, and was discussed by Dr. Clinton W. Lane, St. Louis, Missouri; Dr. M. Toulmin Gaines, Mobile, Alabama; and Dr. Lloyd W. Ketron, Baltimore, Maryland.

Dr. Andrew L. Glaze, Birmingham, Alabama, read a paper entitled "Observations on Two Clinically Distinctive Varieties of Erythema of Uncertain Classification: Treatment," which was discussed by Dr. Thos. W. Murrell, Richmond, Virginia; Dr. M. F. Engman, Jr., St. Louis, Missouri; and Dr. Richard L. Sutton, Jr., Kansas City, Missouri.

Paper by Dr. Jack W. Jones and Dr. Herbert S. Alden, Atlanta, Georgia, entitled "Cutaneous Lymphoblastoma: Some Remarks on Its Treatment," was read by Dr. Jones.

Dr. Richard L. Sutton, Jr., Kansas City, Missouri, read a paper entitled "Carcinoma of the Skin in Its Early Manifestations: A Correlation of Clinical and Microscopic Observations with the Hypothesis of Etiology in Somatic Mutation," which was discussed by Dr. G. V. Stryker, St. Louis, Missouri.

Paper by Dr. S. D. Blackford and Dr. Dudley C. Smith, University of Virginia, entitled "Prolonged Existence of B. Tularense in Skin Ulcers of a Syphilitic Patient" (Lantern Slides) was read by Dr. Smith, and was discussed by Dr. Lee Foshay, Cincinnati, Ohio.

The Section, by motion duly carried, provided for a committee to prepare a letter of condolence to the family of the lately deceased Dr. C. Brooks Wilmot, of Louisville, Kentucky, a former Chairman of this Section. Dr. M. T. Van Studdiford, New Orleans, Louisiana was made Chairman of the Committee.

The Section, by motion duly carried, expressed its thanks to the local dermatologists for their hospitality and for the splendid time that they had provided for the visiting dermatologists.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Jack W. Jones, Atlanta, Georgia.
Vice-Chairman—Dr. Harry M. Robinson, Baltimore, Maryland.
Secretary—Dr. Winston U. Rutledge, Louisville, Kentucky.

Dr. Dudley C. Smith, University, Virginia, suggested that in the future the guest speaker present his subject at a regular session of the Section and not at the annual dinner, as in the past.

The Section voted expression of sympathy and wishes for a speedy recovery to the newly elected Chairman, Dr. Jack W. Jones, Atlanta, Georgia, who early in the afternoon had suffered an attack of slight hemiplegia.

The Section then adjourned *sine die*.

SECTION ON SURGERY

Officers

Chairman—Dr. J. M. Mason, Birmingham, Alabama.
Vice-Chairman—Dr. Charles S. Venable, San Antonio, Texas.
Secretary—Dr. Alton Ochsner, New Orleans, Louisiana.

Wednesday, November 20, 2:00 p. m.

The Section met in the Municipal Auditorium, Assembly Room No. 1, St. Louis, Missouri, and was called to order by the Chairman, Dr. J. M. Mason, Birmingham, Alabama, who presided.

Dr. Alfred P. Jones, Roanoke, Virginia, read a paper entitled "An Unusual Medicolegal Problem."

Paper by Dr. Deryl Hart and Dr. Randolph Jones, Jr., Durham, North Carolina, entitled "Self-Inflicted Injuries in Civil Practice: Report of Fourteen Cases" (Lantern Slides), was read by Dr. Hart.

Papers by Dr. Jones and Drs. Hart and Jones, Jr., were discussed by Dr. Willard Bartlett, St. Louis, Missouri; Dr. Ross A. Woolsey, St. Louis, Missouri; Dr. Warren H. Cole, St. Louis, Missouri; and Dr. Francis T. H'Doubler, Springfield, Missouri.

Dr. Fred W. Rankin, Lexington, Kentucky, read a paper entitled "Concerning Colostomy" (Lantern Slides), which was discussed by Dr. Warren R. Rainey, St. Louis, Missouri; Dr. W. T. Coughlin, St. Louis, Missouri; Dr. Daniel F. Jones, Boston, Massachusetts; and Dr. J. Shelton Horsley, Richmond, Virginia.

Dr. Roy D. McClure, Henry Ford Hospital, Detroit, Michigan, read a paper entitled "Artificial Fever Therapy" (Lantern Slides).

Paper by Dr. Samuel L. Ledbetter, Jr., and Dr. L. O. Davenport, Birmingham, Alabama, entitled "The Surgical Treatment of Pulmonary Tuberculosis: Conservative Thoracoplasty" (Lantern Slides), was read by Dr. Ledbetter, and was discussed by Dr. J. J. Singer, St. Louis, Missouri; Dr. Duane Carr, Memphis, Tennessee; Dr. L. Wallace Frank, Louisville, Kentucky; and in closing by Dr. Ledbetter.

Dr. H. A. Gamble, Greenville, Mississippi, read a paper entitled "The Open Treatment of Peritonitis Secondary to Appendicitis" (Lantern Slides), which was discussed by Dr. Thomas G. Orr, Kansas City, Missouri, and Dr. E. V. Mastin, St. Louis, Missouri.

The Chairman appointed the following Nominating Committee: Dr. Edwin F. Lehman, University, Virginia; Dr. Daniel C. Elkin, Atlanta, Georgia; and Dr. L. Wallace Frank, Louisville, Kentucky.

The Section then adjourned until 2:00 p. m. Thursday.

Thursday, November 21, 2:00 p. m.

The Section met in the Municipal Auditorium, Assembly Room No. 1, St. Louis, Missouri, and was called to order by the Chairman, Dr. J. M. Mason, Birmingham, Alabama, who read his Chairman's Address entitled "The Treatment of Arteriovenous Aneurysms" (Lantern Slides).

Paper by *Dr. Joseph C. Bloodgood and Dr. George A. Stewart, Baltimore, Maryland, entitled "How to Treat Breast Tumors:

*Dr. Bloodgood died October 22.

Those Clinically Malignant by Irradiation to be Followed by Operation; Those Clinically Benign to be Followed by Aspiration or Biopsy or Excision" (Lantern Slides), was read by Dr. Stewart and was discussed by Dr. Frank K. Boland, Atlanta, Georgia; Dr. Ellis Fischel, St. Louis, Missouri; and in closing by Dr. Stewart.

Dr. Neal Owens, New Orleans, Louisiana, read a paper entitled "Plastic Repair of Facial Defects Resulting from Radical Extirpation of Cancer" (Lantern Slides), which was discussed by Dr. Vilray P. Blair, St. Louis, Missouri; Dr. Earl Padgett, Kansas City, Missouri; and in closing by the essayist.

Dr. William Rienhoff, Jr., Baltimore, Maryland, read a paper entitled "Intrathoracic Readjustments Following Total and Partial Pneumonectomy" (Lantern Slides), which was discussed by Dr. Evarts A. Graham, St. Louis, Missouri; Dr. I. A. Bigger, Richmond, Virginia; and in closing by the essayist.

Dr. J. M. Donald, Birmingham, Alabama, read a paper entitled "The Treatment of Acutely Perforated Duodenal Ulcer by Excision with Pyloroplasty: Report of Fourteen Cases Treated by this Method" (Lantern Slides), which was discussed by Dr. Fred W. Bailey, St. Louis, Missouri; Dr. Forest Staley, St. Louis, Missouri; and in closing by the essayist.

Dr. Coral R. Armentrout, Houston, Texas, read a paper entitled "Hernia and Its Effect on the Industrial Worker," which was discussed by Dr. O. B. Zeinert, St. Louis, Missouri; Dr. Earl Rice, St. Louis, Missouri; and in closing by the essayist.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. I. A. Bigger, Richmond, Virginia.
Vice-Chairman—Dr. James Barrett Brown, St. Louis, Missouri.
Secretary—Dr. Alton Ochsner, New Orleans, Louisiana.

The Section then adjourned *sine die*.

SECTION ON BONE AND JOINT SURGERY

Officers

Chairman—Dr. J. Warren White, Greenville, South Carolina.
Vice-Chairman—Dr. R. W. Johnson, Jr., Baltimore Maryland.
Secretary—Dr. Guy A. Caldwell, Shreveport, Louisiana.

Thursday, November 21, 9:00 a. m.

The Section met in the Municipal Auditorium, Assembly Room No. 4, St. Louis, Missouri, and was called to order by the Chairman, Dr. J. Warren White, Greenville, South Carolina, who presided.

Paper by Dr. John D. Sherrill and Dr. O. P. Board, Birmingham, Alabama, entitled "A Report of Gunshot Fractures" (Lantern Slides), was read by Dr. Sherrill and was discussed by Dr. D. H. O'Donoghue, Oklahoma City, Oklahoma, and Dr. W. K. West, Oklahoma City, Oklahoma.

Dr. A. R. Shands, Durham, North Carolina, read a paper entitled "Internal Derangements of the Knee Joint" (Lantern Slides), which was discussed by Dr. Willis C. Campbell, Memphis, Tennessee; Dr. J. Edgar Stewart, St. Louis, Missouri; and Dr. Frank D. Dickson, Kansas City, Missouri.

Dr. E. W. Ryerson, Professor of Orthopedic Surgery, Northwestern University Medical School, Chicago, Illinois, read a paper entitled "Treatment of Ununited Fractures" (Lantern Slides).

Dr. Jacob Kulowski, St. Joseph, Missouri, read a paper entitled "Pyogenic Osteomyelitis of the Pelvis: A Clinical Summary of 91 Cases" (Lantern Slides), which was discussed by Dr. Frank D. Dickson, Kansas City, Missouri; Dr. Earl D. McBride, Oklahoma City, Oklahoma; Dr. J. Albert Key, St. Louis, Missouri; and Dr. Allen F. Voshell, Baltimore, Maryland.

Dr. J. Warren White, Greenville, South Carolina, read his Chairman's Address entitled "Well Leg Traction as an Aid in the Correction of Some Stereotype Orthopedic Deformities."

Dr. E. B. Henson, Charleston, West Virginia, read a paper entitled "The Use of Oxygen in the Mobilization of Stiff Joints" (Lantern Slides), which was discussed by Dr. R. B. Davis, Greensboro, North Carolina, and Dr. J. Albert Key, St. Louis, Missouri.

The Chairman appointed the following Nominating Committee: Dr. Frank D. Dickson, Kansas City, Missouri; Dr. C. H. Crego, St. Louis, Missouri; and Dr. Joseph I. Mitchell, Memphis, Tennessee.

The Section then adjourned until 9:00 a. m. Friday.

Friday, November 22, 9:00 a. m.

The Section met in the Municipal Auditorium, Assembly Room No. 4, St. Louis, Missouri, and was called to order by the Chairman, Dr. White, who presided.

Dr. Joseph I. Mitchell, Memphis, Tennessee, read a paper entitled "Acute Osteomyelitis: Etiology, Symptoms, Diagnosis and Treatment of Eighty Cases" (Lantern Slides), which was discussed by Dr. R. C. Robertson, Chattanooga, Tennessee; Dr. F. L. Fort, Jacksonville, Florida; Dr. C. B. Francisco, Kansas City, Missouri; and Dr. F. Walter Carruthers, Little Rock, Arkansas.

Paper by Dr. Lawson Thornton and Dr. Calvin Sandison, Atlanta, Georgia, entitled "Various Methods of Treating Fractures of the Femur with Special Reference to Internal Fixation of Femoral Neck," was read by Dr. Sandison, and was discussed by Dr. Sim Driver, Dallas, Texas; Dr. Austin T. Moore, Columbia, South Carolina; Dr. J. L. Jones, Kansas City, Missouri; and Dr. J. Warren White, Greenville, South Carolina.

Dr. J. Hiram Kite, Decatur, Georgia, read a paper entitled "Tuberculosis of the Spine with Paraplegia" (Lantern Slides), which was discussed by Dr. W. K. West, Oklahoma City, Oklahoma; Dr. H. A. Durham, Shreveport, Louisiana; and Dr. J. Albert Key, St. Louis, Missouri.

Paper by Dr. Robert V. Funsten and Dr. Prentice Kinser, University, Virginia, entitled "Osteochondritis Dessicans as Related to Trauma," was read by Dr. Funsten and was discussed by Dr. R. W. Billington, Nashville, Tennessee, and Dr. Harold Bohlman, Baltimore, Maryland.

Dr. Henry G Hill, Memphis, Tennessee, read a paper entitled "Fractures of the Shaft of the Femur" (Moving Pictures), which was discussed by Dr. Val Parmley, Little Rock, Arkansas.

Dr. O. B. Bolibaugh, Major, Medical Corps, U. S. Army, Washington, D. C., read a paper entitled "Treatment of Fractures of the Tibia and Fibula by Means of the Roger Anderson Splint" (Lantern Slides), which was discussed by Dr. F. Walter Carruthers, Little Rock, Arkansas; Dr. W. K. West, Oklahoma City, Oklahoma; Dr. Austin T. Moore, Columbia, South Carolina; and Dr. J. Albert Key, St. Louis, Missouri.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Robert W. Johnson, Jr., Baltimore, Maryland.
Vice-Chairman—Dr. Guy A. Caldwell, Shreveport, Louisiana.
Secretary—Dr. Alfred R. Shands, Jr., Durham, North Carolina

The Section then adjourned *sine die*.

SECTION ON GYNECOLOGY

Officers

Chairman—Dr. Elbert Dunlap, Dallas, Texas.
Vice-Chairman—Dr. Lee F. Turlington, Birmingham, Alabama.
Secretary—Dr. R. A. Ross, Durham, North Carolina.

Wednesday, November 20, 9:00 a. m.

The Section met in the Municipal Auditorium, Room A, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. Elbert Dunlap, Dallas, Texas, who read his Chairman's Address entitled "A Changing Gynecology and a Consideration of Gynecological Errors."

Dr. George Gray Ward, Chief Surgeon, Woman's Hospital, New York, New York, read a paper entitled "An Evaluation of Radiotherapy for Carcinoma of the Uterus After Fifteen Years' Experience at the Woman's Hospital," which was discussed by Dr. Frederick J. Taussig, St. Louis, Missouri; Dr. M. Y. Dabney, Birmingham, Alabama; Dr. George Gellhorn, St. Louis, Missouri; and in closing by the essayist.

The Chairman appointed the following Nominating Committee Dr. William T. Black, Memphis, Tennessee; Dr. J. W. Turner, Atlanta, Georgia; and Dr. E. C. Hamblen, Durham, North Carolina.

Paper by Dr. John E. Cannaday and Dr. Hugh A. Bailey, Charleston, West Virginia, entitled "Presacral Nerve Resection for the Relief of Pelvic Pain and Dysmenorrhea" (Lantern Slides), was read by Dr. Cannaday, and was discussed by Dr. Frederick J. Taussig, St. Louis, Missouri; Dr. W. T. Black, Memphis, Tennessee; Dr. M. Y. Dabney, Birmingham, Alabama; Dr. E. C. Hamblen, Durham, North Carolina; and in closing by Dr. Cannaday.

Dr. Frank Hagaman, Jackson, Mississippi, read a paper entitled "Total Versus Subtotal Hysterectomy" (Lantern Slides), which was discussed by Dr. H. S. Crossen, St. Louis, Missouri; Dr. F. Webb Griffith, Asheville, North Carolina; Dr. E. Lee Dorsett, St. Louis, Missouri; and in closing by the essayist.

Paper by Dr. E. C. Hamblen and Dr. W. L. Thomas, Durham, North Carolina, entitled "Hyperplasia of Endometrium: Study of Endometrium After Treatment," was read by Dr. Hamblen and was discussed by Dr. John C. Burch, Nashville, Tennessee; Dr. G. D. Royston, St. Louis, Missouri; and in closing by Dr. Hamblen.

Paper by Dr. John T. Sanders and Dr. Thomas Benton Sellers, New Orleans, Louisiana, entitled "Some Important Factors that Influence Morbidity and Mortality in Gynecological Surgery" (Lantern Slides), was read by Dr. Sanders and was discussed by Dr. W. T. Black, Memphis, Tennessee; Dr. Quitman U. Newell, St. Louis, Missouri; and Dr. George Gray Ward, New York, New York.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Lee F. Turlington, Birmingham, Alabama.
Vice-Chairman—Dr. John C. Burch, Nashville, Tennessee.
Secretary—Dr R. A. Ross, Durham, North Carolina.

The Section then adjourned until 9:00 a. m. Friday.

Friday, November 22, 9:00 a. m.

Joint Session with Section on Obstetrics

The Sections, in joint session, met in the Municipal Auditorium, Assembly Room No. 1, St. Louis, Missouri, and were called to order by Dr. Richard Paddock, St. Louis, Missouri, Chairman of the Section on Obstetrics, who presided.

Dr. J. Bay Jacobs, Washington, D. C., read a paper entitled "Persistent Occipitoposterior" (Lantern Slides), which was discussed by Dr. Walter W. Wells, Oklahoma City, Oklahoma; Dr. T. K. Brown, St. Louis, Missouri; and in closing by the essayist.

Dr. Lee F. Turlington, Birmingham, Alabama, the newly elected Chairman of the Section on Gynecology, took the chair and presided for the remainder of the program.

Dr. Otto J. Potthast, San Antonio, Texas, read a paper entitled "Retroversion, Descensus and the Deep Cul-de-Sac" (Lantern Slides), which was discussed by Dr. George Gellhorn, St. Louis, Missouri; Dr. H. S. Crossen, St. Louis, Missouri; and Dr. E. D. Plass, Iowa City, Iowa.

Section Clinic, Obstetrical Cases, conducted by Dr. E. D. Plass, Professor of Obstetrics and Gynecology, University of Iowa College of Medicine, Iowa City, Iowa, and Dr. Otto H. Schwarz, Professor of Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Missouri, both discussing the cases presented.

(a) "Puerperal Infection" (Lantern Slides). Case furnished and reported by Dr. T. K. Brown, St. Louis, Missouri.

(b) "Low Transverse Incision for Cesarean Section Operation" (Lantern Slides). Case furnished and reported by Dr. W. C. Scrivner, St. Louis, Missouri.

(c) "Face Presentation Indicating Cesarean Section." Case furnished and reported by Dr. John Gray Jones, St. Louis, Missouri.

Section Clinic, Gynecological Cases, conducted by Dr. Wm. H. Vogt, Professor of Clinical Obstetrics and Gynecology, St. Louis University School of Medicine, St. Louis, Missouri.

(a) "Gynecological Management." Case furnished and reported by Dr. Matthew Weis, St. Louis, Missouri.

(b) "Lymphogranuloma Inguinale with Fecal Fistula." Case furnished and reported by Dr. L. M. Riordan, St. Louis, Missouri.

The Section then adjourned *sine die*.

SECTION ON OBSTETRICS

Officers

Chairman—Dr. Richard Paddock, St. Louis, Missouri.
Vice-Chairman—Dr. James R. Bloss, Huntington, West Virginia.
Secretary—Dr. Warren E. Massey, Dallas, Texas.

Thursday, November 21, 9:00 a. m.

The Section met in the Municipal Auditorium, Room No. 1, St. Louis, Missouri, and was called to order by the Chairman, Dr. Richard Paddock, St. Louis, Missouri, who presided.

The Chairman appointed the following Nominating Committee: Dr. J. W. Reddock, New Orleans, Louisiana; Dr. J. R. Reinberger, Memphis, Tennessee; and Dr. E. C. Hamblen, Durham, North Carolina.

Dr. Richard Paddock, St. Louis, Missouri, read his Chairman's Address entitled "Seasonal Occurrence of Various Obstetrical Complications and Abnormalities" (Lantern Slides).

Dr. E. D. Plass, Professor of Obstetrics and Gynecology, University of Iowa College of Medicine, Iowa City, Iowa, read a paper entitled "Some Observations on the Anemia of Pregnancy" (Lantern Slides).

Paper by Dr. James R. Reinberger and Dr. Percy B. Russell, Jr., Memphis, Tennessee, entitled "Logical Eclamptic Therapy Evolved After Nineteen Years' Study in 232 Cases" (Lantern Slides), was read by Dr. Reinberger and was discussed by Dr. G. D. Royston, St. Louis, Missouri; Dr. Otto H. Schwarz, St. Louis, Missouri; Dr. Shelbey B. Hinkle, Little Rock, Arkansas; Dr. James R. Bloss, Huntington, West Virginia; Dr. M. Pierce Rucker, Richmond, Virginia; Dr. Vance H. Bell, Cleveland, Tennessee; and in closing by Dr. Reinberger.

Dr. Milton Smith Lewis, Nashville, Tennessee, read a paper entitled "The Effect of Various Analgesics on the New Born," which was discussed by Dr. Hugo Ehrenfest, St. Louis, Missouri; Dr. G. D. Royston, St. Louis, Missouri; and in closing by the essayist.

Dr. Wilbur E. Hoffman, Charleston, West Virginia, read a paper entitled "Uterine Hemorrhage in Late Pregnancy" (Lantern Slides), which was discussed by Dr. M. Pierce Rucker, Richmond, Virginia; Dr. Wm. H. Vogt, St. Louis, Missouri; Dr. W. B. Anderson, Nashville, Tennessee; and in closing by Dr. Hoffman.

Dr. Joseph W. Reddoch, New Orleans, Louisiana, read a paper entitled "Induction of Labor by Artificial Rupture of the Membranes without Quinine: A Comparison with Several Methods" (Lantern Slides), which was discussed by Dr. W. T. McConnell, Louisville, Kentucky; Dr. E. Lee Dorsett, St. Louis, Missouri; Dr. Walter W. Wells, Oklahoma City, Oklahoma; and in closing by the essayist.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. James R. Bloss, Huntington, West Virginia.
Vice-Chairman—Dr. Warren E. Massey, Dallas, Texas.
Secretary—Dr. Milton Smith Lewis, Nashville, Tennessee.

The Section then adjourned until 9:00 a. m. Friday.

Friday, November 22, 9:00 a. m.

Joint Session with Section on Gynecology

The Sections, in joint session, met in the Municipal Auditorium, Assembly Room No. 1, St. Louis, Missouri, and were called to order by Dr. Richard Paddock, St. Louis, Missouri, Chairman of the Section on Obstetrics, who presided.

Dr. J. Bay Jacobs, Washington, D. C., read a paper entitled "Persistent Occipitoposterior" (Lantern Slides), which was discussed by Dr. Walter W. Wells, Oklahoma City, Oklahoma; Dr. T. K. Brown, St. Louis, Missouri; and in closing by the essayist.

Dr. Lee F. Turlington, Birmingham, Alabama, the newly elected Chairman of the Section on Gynecology, took the chair and presided for the remainder of the program.

Dr. Otto J. Potthast, San Antonio, Texas, read a paper entitled "Retroversion, Descensus and the Deep Cul-de-Sac" (Lantern Slides), which was discussed by Dr. George Gellhorn, St. Louis, Missouri; Dr. H. S. Crossen, St. Louis, Missouri; and Dr. E. D. Plass, Iowa City, Iowa.

Section Clinic, Obstetrical Cases, conducted by Dr. E. D. Plass, Professor of Obstetrics and Gynecology, University of Iowa College of Medicine, Iowa City, Iowa, and Dr. Otto H. Schwarz, Professor of Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Missouri, both discussing the cases presented.

(a) "Puerperal Infection" (Lantern Slides). Case furnished and reported by Dr. T. K. Brown, St. Louis, Missouri.

(b) "Low Transverse Incision for Cesarean Section" (Lantern Slides). Case furnished and reported by Dr. W. C. Scrivner, St. Louis, Missouri.

(c) "Face Presentation Indicating Cesarean Section." Case furnished and reported by Dr. John Gray Jones, St. Louis, Missouri.

Section Clinic, Gynecological Cases, conducted by Dr. Wm. H. Vogt, Professor of Clinical Obstetrics and Gynecology, St. Louis University School of Medicine, St. Louis, Missouri.

(a) "Gynecological Management." Case furnished and reported by Dr. Matthew H. Weis, St. Louis, Missouri.

(b) "Lymphogranuloma Inguinale with Fecal Fistula." Case furnished and reported by Dr. L. M. Riordan, St. Louis, Missouri.

The Section then adjourned *sine die*.

SECTION ON UROLOGY

Officers

Chairman—Dr. B. Weems Turner, Houston, Texas.
Vice-Chairman—Dr. Thomas D. Moore, Memphis, Tennessee.
Secretary—Dr. Jefferson C. Pennington, Nashville, Tennessee.

Thursday, November 21, 9:00 a. m.

The Section met in the Municipal Auditorium, Assembly Room No. 2, St. Louis, Missouri, and was called to order by the Chairman, Dr. B. Weems Turner, Houston, Texas, who presided.

Dr. Bransford Lewis, St. Louis, Missouri, gave an Address of Welcome to the Section. Dr. Neil S. Moore, a member of the Section and President of the St. Louis Medical Society, responded with a tribute to Dr. Lewis.

Dr. Temple Ainsworth, Jackson, Mississippi, read a paper entitled "Unilateral Renal Agenesis," which was discussed by Dr. Russell A. Hennessey, Memphis, Tennessee; Dr. Robert B. McIver, Jacksonville, Florida; Dr. I. G. Duncan, Memphis, Tennessee; Dr. Ernest G. Mark, Kansas City, Missouri; and in closing by the essayist.

Paper by Dr. Nelse F. Ockerblad and Dr. Hjalmar E. Carlson, Kansas City, Missouri, entitled "The Effect of Morphine upon the Human Ureter and Its Clinical Application," was read by Dr. Ockerblad, and was discussed by Dr. Dalton Keats Rose, St. Louis, Missouri; Dr. Clinton K. Smith, Kansas City, Missouri; Dr. Rex E. Van Duzen, Dallas, Texas; Dr. Floyd Stewart, St. Louis, Missouri; and in closing by Dr. Ockerblad.

Dr. Thomas D. Moore, Memphis, Tennessee, read a paper entitled "The Limitations of Intravenous Urography," which was discussed by Dr. J. Ullman Reeves, Mobile, Alabama; Dr. Edgar G. Ballenger, Atlanta, Georgia; and Dr. Grayson Carroll, St. Louis, Missouri.

Dr. William R. Barron, Columbia, South Carolina, read a paper entitled "Submucous Fibrosis of the Urinary Bladder," which was discussed by Dr. Nelse F. Ockerblad, Kansas City, Missouri; Dr. T. M. Davis, Greenville, South Carolina; Dr. Austin I. Dodson, Richmond, Virginia; and Dr. Harry A. Fowler, Washington, D. C.

Dr. Linwood D. Keyser, Roanoke, Virginia, read a paper entitled "Pain Syndromes in the Urinary Tract: Their Mechanisms and Clinical Management" (Lantern Slides), which was discussed by Dr. Perry Bromberg, Nashville, Tennessee; Dr. Nelse F. Ockerblad, Kansas City, Missouri; Dr. Bransford Lewis, St. Louis, Missouri; Dr. Rex E. Van Duzen, Dallas, Texas; and in closing by the essayist.

Dr. B. Weems Turner, Houston, Texas, read his Chairman's Address entitled "Cancer of the Kidney: Report of Cases" (Lantern Slides).

The Section then adjourned until 9:00 a. m. Friday.

Friday, November 22, 9:00 a. m.

The Section met in the Municipal Auditorium, Assembly Room No. 2, St. Louis, Missouri, and was called to order by the Chairman, Dr. Turner, who presided.

The Chairman appointed the following Nominating Committee: Dr. Charles F. Anderson, Nashville, Tennessee; Dr. J. Ullman Reeves, Mobile, Alabama; and Dr. Austin I. Dodson, Richmond, Virginia.

Dr. W. A. Reed, New Orleans, Louisiana, read a paper entitled "The Symptomatic Relation of Urinary Disturbances to Diseases of the Intestinal Tract," which was discussed by Dr. Grayson Carroll, St. Louis, Missouri; Dr. Milton M. Coplan, Miami, Florida; Dr. W. G. Schulte, Salt Lake City, Utah; and in closing by the essayist.

Dr. Budd C. Corbus, Chicago, Illinois, read a paper entitled "An Evaluation of the Gonococcus Bouillon Filtrate (Corbus-Ferry)" (Lantern Slides), which was discussed by Dr. V. Rogers Deakins, St. Louis, Missouri; Dr. Otto J. Wilhelmi, St. Louis, Missouri; Dr. Nelse F. Ockerblad, Kansas City, Missouri; Dr. I. G. Duncan, Memphis, Tennessee; and in closing by the essayist.

Paper by Dr. Walter F. Scott and Dr. R. C. McQuiddy, Birmingham, Alabama, entitled "Prostatic Malignancy as Revealed by the Resectoscope," was read by Dr. McQuiddy, and was discussed by Dr. Edgar G. Ballenger, Atlanta, Georgia; Dr. Theodore M. Davis, Greenville, South Carolina; Dr. William R. Barron, Columbia, South Carolina; Dr. Rex. E. Van Duzen, Dallas, Texas; Dr. Hubert K. Turley, Memphis, Tennessee; and in closing by Dr. McQuiddy.

Dr. Owsley Grant, Louisville, Kentucky, read a paper entitled "Purging the Prostate" (Lantern Slides), which was discussed by Dr. Edgar G. Ballenger, Atlanta, Georgia; Dr. H. King Wade, Hot Springs, Arkansas; Dr. Nelse F. Ockerblad, Kansas City, Missouri; and in closing by the essayist.

Paper by Dr. Roy J. Holmes and Dr. Milton M. Coplan, Miami, Florida, entitled "The Management of Ureteral Calculi" (Lantern Slides), was read by Dr. Coplan, and was discussed by Dr. James Martin Macnish, St. Louis, Missouri; Dr. Robert B. McIver, Jacksonville, Florida; Dr. Bransford Lewis, St. Louis, Missouri; Dr. Otto J. Wilhelmi, St. Louis, Missouri; Dr. Theodore M. Davis, Greenville, South Carolina; and in closing by Dr. Coplan.

Dr. R. M. LeComte, Washington, D. C., read a paper entitled "Indications for Operation in Renal Stones," which was discussed by Dr. I. G. Duncan, Memphis, Tennessee; Dr. Lynwood Keyser, Roanoke, Virginia; Dr. Bransford Lewis, St. Louis, Missouri; Dr. Owsley Grant, Louisville, Kentucky; Dr. B. Weems Turner, Houston, Texas; Dr. H. King Wade, Hot Springs, Arkansas; Dr. Arthur Simon, Decatur, Illinois; Dr. William S. Ehrich, Evansville, Indiana; Dr. Hubert K. Turley, Memphis, Tennessee; and in closing by the essayist.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Thomas D. Moore, Memphis, Tennessee.
Vice-Chairman—Dr. Grayson Carroll, St. Louis, Missouri.
Secretary—Dr. Jefferson C. Pennington, Nashville, Tennessee.

The Section then adjourned *sine die*.

SECTION ON RAILWAY SURGERY

Officers

Chairman—Dr. W. N. Blount, Laurel, Mississippi.
Vice-Chairman—Dr. Charles C. Green, Houston, Texas.
Secretary—Dr. J. W. Palmer, Ailey, Georgia.

Wednesday, November 20, 9:00 a. m.

The Section met in the Municipal Auditorium, Room B, Exposition Floor, St. Louis, Missouri, and was called to order by Dr. Edward T. Newell, Chattanooga, Tennessee, a former Chairman of the Section, who presided at the request of the Chairman, Dr. W. N. Blount, who was prevented from attending on account of illness. In the absence of the Secretary, Dr. George A. Traylor, Augusta, Georgia, acted as Secretary.

The Address of the Chairman, Dr. W. N. Blount, Laurel, Mississippi, entitled "Unusual Blood Chemistry Findings in a Case of Carcinoma of the Bladder with Metastasis," was read by the Acting Chairman, Dr. Newell.

The Acting Chairman appointed the following Nominating Committee: Dr. O. B. Zeinert, St. Louis, Missouri; Dr. Ross A. Woolsey, St. Louis, Missouri; and Dr. George A. Traylor, Augusta, Georgia.

Dr. Ross A. Woolsey, St. Louis, Missouri, read a paper entitled "Gonorrheal Osteomyelitis of the Vertebrae" (Lantern Slides), which was discussed by Dr. Frank P. Strickler, Louisville, Kentucky, and in closing by the essayist.

Paper by Dr. J. S. Speed and Dr. H. B. Boyd, Memphis, Tennessee, entitled "Bone Syphilis," was read by Dr. Speed, and was discussed by Dr. Frank P. Strickler, Louisville, Kentucky; Dr. Earl D. McBride, Oklahoma City, Oklahoma; Dr. R. B. Davis, Greensboro, North Carolina; Dr. Ross A. Woolsey, St. Louis, Missouri; Dr. Don C. Eskew, Miami, Florida; Dr. Robert Carothers, Cincinnati, Ohio; Dr. George A. Traylor, Augusta, Georgia; Dr. F. J. Kirby, Baltimore, Maryland; Dr. C. P. Fox, Greenville, Tennessee; and in closing by Dr. Speed.

Paper by Dr. Leonard Hart and Dr. I. W. Cooper, Meridian, Mississippi, entitled "Hypertension," was read by Dr. Hart, and was discussed by Dr. J. E. Knighton, Shreveport, Louisiana; Dr. O. B. Zeinert, St. Louis, Missouri; and in closing by Dr. Hart.

Dr. J. H. Hendren, Harlan Kentucky, moved that Dr. Robert Carothers, Cincinnati, Ohio, be requested to present a paper on

"Medical Testimony" before the Section at its next annual session. The motion was seconded by Dr. L. J. Kosminsky, Texarkana, Arkansas, and carried by a unanimous vote.

Dr. Edward T. Newell, Chattanooga, Tennessee, presented a series of slides illustrating fracture work at the Newell Clinic.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr Ross A. Woolsey, St. Louis, Missouri.
Vice-Chairman—Dr. J. W. Palmer, Ailey, Georgia.
Secretary—Dr. George A. Traylor, Augusta, Georgia.

The Section then adjourned *sine die*.

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

Officers

Chairman—Dr William A. Wagner, New Orleans, Louisiana.
Vice-Chairman—Dr. R. E. Parrish, San Antonio, Texas.
Secretary—Dr. Oscar M. Marchman, Dallas, Texas.

Wednesday, November 20, 9:00 a. m.

The Section met in the Municipal Auditorium, Opera House, St. Louis, Missouri, and was called to order by the Chairman, Dr. William A. Wagner, who read his Chairman's Address entitled "The Management of Pansinusitis" (Lantern Slides and Moving Pictures).

Paper by Dr. Joseph C. Beck, Associate Professor Emeritus of Otolaryngology, University of Illinois College of Medicine, and Dr. M. Reese Guttman, Chicago, Illinois, entitled "Some Essential Points in the Diagnosis and Treatment of Neoplastic Disease About the Ear, Nose and Throat and Their Borderland," was read by Dr. Beck.

Dr. Paul L. Mahoney, Little Rock, Arkansas, read a paper entitled "The Relationship of Maxillary Sinusitis to Infection in the Contiguous Sinuses, Middle Ear and Lower Respiratory Tract" (Lantern Slides), which was discussed by Dr. Joseph B. Greene, Asheville, North Carolina, and Dr. Louis Daily, Houston, Texas.

Dr. F. C. Schreiber, Washington, D. C., read a paper entitled "Septic Infections of the Lepto-meninges," which was discussed by Dr. John H. Foster, Houston, Texas; and Dr. Millard F. Arbuckle, St. Louis, Missouri.

Dr. Shaler Richardson, Jacksonville, Florida, read a paper entitled "The Toxic Effect of Quinine on the Eye" (Lantern Slides), which was discussed by Dr. Phil M. Lewis, Memphis, Tennessee.

Dr. Adolph O. Pfingst, Louisville, Kentucky, read a paper entitled "Expulsive Choroidal Hemorrhage Complicating Cataract Extraction," which was discussed by Dr. H. G. Reynolds, Paducah, Kentucky, and Dr. Wiley R. Buffington, New Orleans, Louisiana.

Dr. A. L. Bass, Louisville, Kentucky, read a paper entitled "Primary Hemorrhage from the Antrum Highmore," which was discussed by Dr. T. L. Davis, Chattanooga, Tennessee.

The Section then adjourned until 9:00 a. m. Thursday.

Thursday, November 21, 9:00 a. m.

The Section met in the Municipal Auditorium, Opera House, St. Louis, Missouri, and was called to order by the Chairman, Dr. Wagner, who presided.

The Chairman appointed the following Nominating Committee: Dr. E. W. Rucker, Jr., Birmingham, Alabama; Dr. John R. Hume, New Orleans, Louisiana; and Dr. Adna G. Wilde, Jackson, Mississippi.

Dr. John M. Wheeler, Professor of Ophthalmology, Columbia University College of Physicians and Surgeons, New York, New York, read a paper entitled "Plastic Surgery Problems for Ophthalmologists" (Lantern Slides).

Dr. Thomas W. Moore, Huntington, West Virginia, read a paper entitled "Some Sinus Conditions with Unique Symptoms," which was discussed by Dr. Millard F. Arbuckle, St. Louis, Missouri; Dr. H. S. Hedges, Charlottesville, Virginia; Dr. W. Likely Simpson, Memphis, Tennessee; and Dr. Edgar H. Ford, Knoxville, Tennessee.

Dr. C. A. Clapp, Baltimore, Maryland, read a paper entitled "Hyaline Membranes upon the Posterior Surface of the Cornea with Special Reference to the Congenital Types" (Lantern Slides), which was discussed by Dr. Lawrence T. Post, St. Louis, Missouri; and Dr. Ray K. Dailey, Houston, Texas.

Dr. George E. Adkins, Jackson, Mississippi, read a paper entitled "The Chief and Most Common Cause of Nasal and Upper Dental Deformities," which was discussed by Dr. E. King Gill, Corpus Christi, Texas.

Paper by Dr. Watt W. Eagle and Dr. Robert J. Reeves, Durham, North Carolina, entitled "The Treatment of Lymphoid Hypertrophies and Infections of the Pharynx and Nasopharynx by Irradiation," was read by Dr. Eagle, and was discussed by Dr. Robert J. Reeves, Durham, North Carolina; Dr. John T. Crebbin, Shreveport, Louisiana; and Dr. Robert G. Reeves, Knoxville, Tennessee.

Dr. F. B. Blackmar, Columbus, Georgia, read a paper entitled "The N. C. G. Level" (Lantern Slides), which was discussed by Dr. E. W. Rucker, Jr., Birmingham, Alabama; Dr. Fred J. Pratt, Minneapolis, Minnesota; and Dr. Jos. D. Heitger, Louisville, Kentucky.

The Section then adjourned until 9:00 a. m. Friday.

Friday, November 22, 9:00 a. m.

The Section met in the Municipal Auditorium, Room C, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. Wagner, who presided.

Dr. W. Likely Simpson, Memphis, Tennessee, read a paper entitled "The Indications for the External Ethmo-Spheno-Frontal Sinus Operation" (Lantern Slides), which was discussed by Dr. Sidney Israel, Houston, Texas; Dr. Arthur W. Proetz, St. Louis, Missouri; Dr. Fred J. Pratt, Minneapolis, Minnesota; Dr. Wm. Davis Black, St. Louis, Missouri; Dr. R. E. Parrish, San Antonio, Texas; Dr. John R. Hume, New Orleans, Louisiana; and Dr. Murdock Equen, Atlanta, Georgia.

Dr. N. E. Hartsook, Johnson City, Tennessee, read a paper entitled "A General Consideration of Defective Hearing and Deafness with Particular Reference to Etiology," which was discussed by Dr. Geo. H. B. Terry, Oteen, North Carolina; and Dr. Louis K. Guggenheim, St. Louis, Missouri.

Dr. John R. Hume, New Orleans, Louisiana, read a paper entitled "Clinical Deductions from Cytological Findings of the Nasal Secretions" (Lantern Slides), which was discussed by Dr. William D. Gill, San Antonio, Texas; Dr. C. C. Swann, Asheville, North Carolina; Dr. William H. Harris, New Orleans, Louisiana; and Dr. I. S. Kahn, San Antonio, Texas.

Dr. T. J. Dimitry, New Orleans, Louisiana, read a paper entitled "Physiological Relationship of the Nose and Eye: A Study of the Effect of Chaulmoogra Oil on the Nasal Mucosa," which was discussed by Dr. Harvey J. Howard, St. Louis, Missouri; Dr. William H. Luedde, St. Louis, Missouri; and Dr. Edward H. Cary, Dallas, Texas.

Dr. J. W. Jervey, Jr., Greenville, South Carolina, read a paper entitled "Some Observations on the Jameson Recession Operation for Strabismus" (Moving Pictures), which was discussed by Dr. Edward H. Cary, Dallas, Texas.

Dr. Ray K. Daily, Houston, Texas, read a paper entitled "The Use of Contact Glasses in Ophthalmology" (Lantern Slides), which was discussed by Dr. Ralph O. Rychener, Memphis, Tennessee; Dr. Grady E. Clay, Atlanta, Georgia; and in closing by the essayist.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Millard F. Arbuckle, St. Louis, Missouri.
Vice-Chairman—Dr. Grady E. Clay, Atlanta, Georgia.
Secretary—Dr. Oscar M. Marchman, Dallas, Texas.

The Section then adjourned *sine die*.

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

Round Table Session

The Round Table Sessions were held in the Municipal Auditorium, Opera House, St. Louis, Missouri, under the direction of Dr. William D. Gill, San Antonio, Texas, Chairman for Round Table Sessions, who presided.

Wednesday, November 20, 2:00 p. m.

OPHTHALMOLOGY

Dr. John O. McReynolds, Dallas, Texas, presented the subject "Ophthalmic Surgery: A Consideration of the Operative Proce-

dures in Glaucoma," which was discussed by Dr. William H. Luedde, St. Louis, Missouri; Dr. John L. Scales, Shreveport, Louisiana; Dr. Conrad Berens, New York, New York; Dr. K. W. Constantine, Birmingham, Alabama; Dr. Phil M. Lewis, Memphis, Tennessee; Dr. Grady E. Clay, Atlanta, Georgia; Dr. S. Weinzenblatt, Asheville, North Carolina; and Dr. Michael Goldenburg, Chicago, Illinois.

Dr. Conrad Berens, New York, New York, presented the subject "Ocular Fatigue" (Lantern Slides), which was discussed by Dr. Wm. Thornwall Davis, Washington, D. C., and Dr. C. S. Sykes, Galveston, Texas.

Dr. Wiley R. Buffington, Professor of Ophthalmology, Tulane University School of Medicine, New Orleans, Louisiana, presented the subject "Ocular Therapeutics: Conjunctivitis, Corneal Infections, Tuberculous Uveitis" (Lantern Slides), which was discussed by Dr. Martin Hayward Post, Jr., St. Louis, Missouri, and Dr. William M. Carpenter, Greenville, South Carolina.

Thursday, November 21, 2:00 p. m.

OTOLARYNGOLOGY

Dr. Austin A. Hayden, Chicago, Illinois, presented the subject "Conservation of Hearing," which was discussed by Dr. Harvey B. Searcy, Tuscaloosa, Alabama; and Dr. Murdock Equen, Atlanta, Georgia.

Dr. Fred J. Pratt, Assistant Professor of Otology, University of Minnesota Medical School, Minneapolis, Minnesota, presented the subject "Intranasal Ethmoid Surgery," which was discussed by Dr. Louis Daily, Houston, Texas; Dr. Philip B. Greenberg, Beaumont, Texas; Dr. Murdock Equen, Atlanta, Georgia; Dr. E. W. Rucker, Jr., Birmingham, Alabama; Dr. Wm. Davis Black, St. Louis, Missouri; and Dr. W. Likely Simpson, Memphis, Tennessee.

Dr. LaVerne B. Spake, Assistant Professor of Otolaryngology, University of Kansas School of Medicine, Kansas City, Kansas, presented the subject "A Clinical Classification of Mastoiditis with Indications for Surgery of Mastoid Process from a Review of Six Hundred Cases" (Lantern Slides), which was discussed by Dr. Murdock Equen, Atlanta, Georgia; Dr. G. W. Burchfield, Maryville, Tennessee; Dr. T. L. Davis, Chattanooga, Tennessee; Dr. E. N. Maner, Savannah, Georgia; Dr. Wm. Davis Black, St. Louis, Missouri; Dr. A. M. McMahan, Duncan, Oklahoma; Dr. Philip B. Greenberg, Beaumont, Texas; Dr. William A. Wagner, New Orleans, Louisiana; Dr. E. Lee Myers, St. Louis, Missouri; Dr. W. Likely Simpson, Memphis, Tennessee; Dr. Charles A. Leavy, St. Louis, Missouri; Dr. Edwin N. Robertson, Concordia, Kansas; Dr. J. W. Jervey, Jr., Greenville, South Carolina; Dr. F. O. Kettelkamp, Colorado Springs, Colorado; and Dr. Morris B. Schreiber, Baltimore, Maryland.

The Round Table Sessions then adjourned *sine die*.

SECTION ON MEDICAL EDUCATION

Officers

Chairman—Dr. George T. Caldwell, Dallas, Texas.
Vice-Chairman—Dr. John H. Musser, New Orleans, Louisiana.
Secretary—Dr. Harvey S. Thatcher, Little Rock, Arkansas.

Wednesday, November 20, 9:00 a. m.

The Section met in the Municipal Auditorium, Room C, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. George T. Caldwell, Professor of Pathology, Baylor University College of Medicine, Dallas, Texas, who read his Chairman's Address entitled "The Functional Viewpoint in the Medical Sciences."

The Chairman appointed the following Nominating Committee: Dr. W. B. Grayson, Little Rock, Arkansas; Dr. Lewis J. Moorman, Oklahoma City, Oklahoma; and Dr. Lee E. Sutton, Jr., Richmond, Virginia.

Dr. Dean Lewis, Professor of Surgery, Johns Hopkins University School of Medicine, Baltimore, Maryland, read a paper entitled "The Objectives of Medical Education," which was discussed by Dr. Evarts A. Graham, St. Louis, Missouri; Dr. N. P. Sherwood, Lawrence, Kansas; and in closing by the essayist.

Dr. Lewis J. Moorman, Medical Director, The Farm Sanatorium, Oklahoma City, Oklahoma, read a paper entitled "Francis Adams of Banchory," which was discussed by Dr. Frank Vinsonhaler, Little Rock, Arkansas; Dr. Stewart R. Roberts, Atlanta, Georgia; and in closing by the essayist.

Dr. Lee E. Sutton, Jr., Dean, Medical College of Virginia, Richmond, Virginia, read a paper entitled "The Saint Philip Hospital Postgraduate Clinic for Negro Physicians: A Five-Year Report," which was discussed by Dr. Stewart R. Roberts, Atlanta, Georgia.

Paper by Dr. W. S. Leathers, Dean, Vanderbilt University School of Medicine, Nashville, Tennessee, entitled "Some Observations Relative to Nursing Education," was read by title.

Dr. L. W. Diggs, Assistant Professor of Pathology, University of Tennessee College of Medicine, Memphis, Tennessee, read a paper entitled "The Four Quarter System at the University of Tennessee," which was discussed by Dr. Harry C. Schmeisser, Memphis, Tennessee, and Dr. Charles E. Humiston, Chicago, Illinois.

Dr. W. McKim Marriott, Dean, Washington University School of Medicine, St. Louis, Missouri, read a paper entitled "Unification of the Medical Curriculum," which was discussed by Dr. Byron L. Robinson, Little Rock, Arkansas.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Harry C. Schmeisser, Memphis, Tennessee.
Vice-Chairman—Dr. Russell H. Oppenheimer, Atlanta, Georgia.
Secretary—Dr. Harvey S. Thatcher, Little Rock, Arkansas.

The Section then adjourned *sine die*.

SECTION ON PUBLIC HEALTH

Officers

Chairman—Dr. W. K. Sharp, Jr., New Orleans, Louisiana.
Vice-Chairman—Dr. T. J. McCamant, El Paso, Texas.
Secretary—Dr. Douglas L. Cannon, Montgomery, Alabama.

Wednesday, November 20, 2:00 p. m.

The Section met in the Municipal Auditorium, Room D, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. W. K. Sharp, Jr., New Orleans, Louisiana, who presided.

Paper by Dr. Charles D. Cawood, Director of Fayette County Health Department, Lexington, Kentucky, and Dr. P. E. Blackerby, Director, Bureau of County Health Work, State Department of Health, Louisville, Kentucky, entitled "Knowledge of Essential Resources, an Important Factor in County Health Administration," was read by Dr. Cawood, and was discussed by Dr. W. C. Williams, Nashville, Tennessee; Dr. H. C. Ricks, Jackson, Mississippi; Dr. P. E. Blackerby, Louisville, Kentucky; and in closing by Dr. Cawood.

Paper by Dr. J. N. Baker, State Health Officer, Dr. Jas. G. McAlpine, Director of Laboratories, State Department of Health, Montgomery, Alabama, and Dr. J. D. Dowling, County Health Officer, Birmingham, Alabama, entitled "Rabies: A Continuing Challenge" (Lantern Slides), was read by Dr. Baker, and was discussed by Dr. E. T. McGaugh, Jefferson City, Missouri; Dr. George A. Denison, Birmingham, Alabama; Dr. John D. Trawick, Louisville, Kentucky; Dr. Mazyck P. Ravenel, Columbia, Missouri; and in closing by Dr. Baker.

Paper by Dr. W. S. Leathers, Dean and Professor of Preventive Medicine and Public Health, and Dr. A. E. Keller, Assistant Professor of Preventive Medicine and Public Health, Vanderbilt University School of Medicine, Nashville, Tennessee, entitled "Investigations Concerning Hookworm Disease in Southern States with Suggestions for Continued Control" (Lantern Slides), was read by Dr. Keller, and was discussed by Dr. D. G. Gill, Montgomery, Alabama; Dr. John A. Ferrell, New York, New York; and in closing by Dr. Keller.

Dr. L. L. Lumsden, Medical Director, U.S.P.H.S., New Orleans, Louisiana, read a paper entitled "Epidemiological Principles," which was discussed by Dr. Charles H. Halliday, Baltimore, Maryland; Dr. W. B. Grayson, Little Rock, Arkansas; Dr. James A. Crabtree, Knoxville, Tennessee; Dr. George H. Ramsey, Albany, New York; and in closing by the essayist.

Dr. Albert E. Russell, Surgeon, U.S.P.H.S., Washington, D. C., read a paper entitled "Tuberculosis as a Public Health Problem of Today," which was discussed by Dr. H. I. Spector, St. Louis, Missouri; Dr. L. C. Boisliniere, St. Louis, Missouri; and Dr. Oscar O. Miller, Louisville, Kentucky.

The Chairman appointed the following Nominating Committee: Dr. P. E. Blackerby, Louisville, Kentucky; Dr. W. B. Grayson, Little Rock, Arkansas; and Dr. J. N. Baker, Montgomery, Alabama.

The Section then adjourned until 9:00 a. m. Thursday.

Thursday, November 21, 9:00 a. m.

The Section met in the Municipal Auditorium, Room D, Exposition Floor, St. Louis, Missouri, and was called to order by the Secretary, Dr. Douglas L. Cannon, Montgomery, Alabama, who presided while the Chairman read his address.

Dr. W. K. Sharp, Jr., Acting Assistant Surgeon, U.S.P.H.S., New Orleans, Louisiana, read his Chairman's Address entitled "A New Era in Public Health."

Dr. Arthur T. McCormack, Louisville, Kentucky, moved that the U.S.P.H.S. be requested to furnish the President of the Conference of State and Provincial Health Authorities with multigraphed copies of the Address of Chairman Sharp to the end that it might be furnished the Governors of the several states.

Dr. B. J. Lloyd, Medical Director, U.S.P.H.S.; Assistant to Director, Pan American Sanitary Bureau, Washington, D. C., read a paper entitled "Public Health Significance of Our Newer Knowledge of Yellow Fever," which was discussed by Mr. J. A. LePrince, Memphis, Tennessee; Dr. T. H. D. Griffitts, Jacksonville, Florida; Dr. Louis L. Williams, Jr., Washington, D. C.; Dr. Felix J. Underwood, Jackson, Mississippi; and in closing by the essayist.

Dr. John A. Ferrell, New York, New York, read a paper entitled "A Few Health Problems Awaiting Solution," which was discussed by Dr. Felix J. Underwood, Jackson, Mississippi; Dr. I. C. Riggin, Richmond, Virginia; Dr. Louis H. Ritzhaupt, Guthrie, Oklahoma; and Dr. Arthur T. McCormack, Louisville, Kentucky.

Dr. D. L. Seckinger, Chief, Division of Epidemiology, State Department of Public Health, Atlanta, Georgia, read a paper entitled "The Epidemiology of *Endamoeba histolytica* Infection in Two Rural Georgia Counties," which was discussed by Dr. Charles F. Craig, New Orleans, Louisiana, and in closing by the essayist.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Douglas L. Cannon, Montgomery, Alabama.
Vice-Chairman—Dr. William H. F. Warthen, Baltimore, Maryland.
Secretary—Dr. W. C. Williams, Nashville, Tennessee.

The Section then adjourned *sine die*.

SOUTHERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION

Meeting conjointly with Southern Medical Association

Officers

President—Dr. C. E. Waller, Washington, D. C.
First Vice-President—Mr. V. M. Ehlers (C.E.), Austin, Texas.
Second Vice-President—Dr. I. C. Riggin, Richmond, Virginia.
Third Vice-President—Miss Ruth Mettinger (N.R.), Jacksonville, Florida.
Secretary-Treasurer—Dr. G. F. McGinnes, Richmond, Virginia.

Tuesday, November 19, 12:00 noon

Meeting of the Governing Council, Statler Hotel, Dr. C. E. Waller, President, presiding

Tuesday, November 19, 1:30 p. m.

The fourth annual General Scientific Session convened in the Municipal Auditorium, Room D, Exposition Floor, St. Louis, Missouri, and was called to order by the President, Dr. C. E. Waller, Assistant Surgeon General, U.S.P.H.S., Washington, D. C., who presided.

SYMPOSIUM ON POLIOMYELITIS

Paper was presented by Dr. Carl V. Reynolds, State Health Officer, Raleigh, North Carolina; Dr. I. C. Riggin, State Health Commissioner, Richmond, Virginia; Dr. Arthur T. McCormack, State Health Officer, Louisville, Kentucky; and Dr. W. C. Williams, State Commissioner of Public Health, Nashville, Tennessee, entitled "Poliomyelitis in 1935" (Lantern Slides).

Dr. W. W. Waddell, Jr., Assistant Professor of Pediatrics, University of Virginia, University, Virginia, read a paper entitled "Clinical Features of Poliomyelitis" (Lantern Slides).

Paper by Dr. A. G. Gilliam, Assistant Surgeon, and Dr. R. H. Onstott, Passed Assistant Surgeon, U.S.P.H.S., Washington, D. C., entitled "Results of Field Studies with Poliomyelitis Vaccine" (Lantern Slides), was read by Dr. Gilliam.

Paper by Dr. Maurice Brodie and Dr. William H. Park, Bureau of Laboratories, Department of Health, New York, New York, entitled "Poliomyelitis Immunization" (Lantern Slides), was read by Dr. Brodie.

Dr. John A. Kolmer, Director, Research Institute of Cutaneous Medicine, Philadelphia, Pennsylvania, read a paper entitled "Vaccination Against Acute Anterior Poliomyelitis."

Dr. Thomas M. Rivers, Rockefeller Institute for Medical Research, New York, New York, read a paper entitled "Immunity in Virus Diseases with Particular Reference to Poliomyelitis."

Papers in the Symposium were discussed by Dr. John F. Kessel, Los Angeles, California; Dr. C. H. Halliday, Baltimore, Maryland; Dr. J. P. Leake, Washington, D. C.; Dr. Henry Vaughan, Detroit, Michigan; and in closing by Dr. Brodie and Dr. Kolmer.

The Association then adjourned until 9:30 a. m. Wednesday.

Wednesday, November 20, 9:30 a. m.

The General Scientific Session met in the Municipal Auditorium, Room D, Exposition Floor, St. Louis, Missouri, and was called to order by the President, Dr. C. E. Waller, Assistant Surgeon General, U.S.P.H.S., Washington, D. C., who read his President's Address entitled "Public Health in the Social Security Program."

Dr. Felix J. Underwood, Executive Officer, State Board of Health, Jackson, Mississippi, read a paper entitled "The Relationship Between State and Local Health Departments," which was discussed by Dr. William H. F. Warthen, Baltimore, Maryland; Dr. C. Howe Eller, Charlottesville, Virginia; Dr. George H. Ramsey, Albany, New York; Dr. B. J. Lloyd, Washington, D. C.; Dr. A. T. McCormack, Louisville, Kentucky; and in closing by the essayist.

Dr. George H. Ramsey, Director, Division of Communicable Diseases, State Department of Health, Albany, New York, read a paper entitled "Scarlet Fever and Streptococcus Infections" (Lantern Slides), which was discussed by Dr. H. I. Spector, St. Louis, Missouri; Dr. D. L. Seckinger, Atlanta, Georgia; Dr. B. J. Lloyd, Washington, D. C.; Dr. Gladys Dick, Chicago, Illinois; and in closing by the essayist.

Paper by Dr. George A. Denison, Director, and Dr. Frank R. Hunter (C.P.H.), Assistant Director, Bureau of Laboratories, Jefferson County Board of Health, Birmingham, Alabama, entitled "The Control of Rabies in a Southern City" (Lantern Slides), was read by Dr. Denison, and was discussed by Dr. J. N. Baker, Montgomery, Alabama; Dr. S. W. Bohls, Austin, Texas; Dr. Harris, St. Louis, Missouri; and in closing by Dr. Denison.

The President presented the Executive Secretary of the American Public Health Association, Dr. Reginald Atwater, New York, New York.

BUSINESS MEETING

Dr. C. E. Waller, President, called on the Chairmen of the Standing Committees to make their reports.

Dr. Leon Banov, Chairman of Finance Committee, was absent. Dr. Warren F. Draper, Chairman of Interstate and Federal Relations Committee, had no report to make. Dr. J. W. Brown, Chairman of International Problems Committee, was absent.

Dr. G. F. McGinnes, Chairman of the Meetings and Publications Committee, made the following report: The Committee on Meetings and Publications wishes to express their thanks and appreciation to Mr. C. P. Loranz, Secretary-Manager of the Southern Medical Association, for the cooperation and aid which he has given us in making plans for this meeting. ¶The Committee is indebted to the American Public Health Association for their aid and to each member of this Association for their cooperation. ¶The Committee regrets that it has been impossible to publish the proceedings of the last meeting of this Association. However, many of the papers have appeared in the journals of other organizations. We hope that it will be possible to print the proceedings of this meeting.

Dr. G. F. McGinnes, Secretary-Treasurer, made the following report: In these days when people are speaking of millions of dollars it is embarrassing to give the Treasurer's Report of this organization which speaks in pennies. Therefore, I will only say that the receipts during the past year have been extremely small, but the expenditures have been even smaller.

The President appointed the following Nominating Committee: Dr. Arthur T. McCormack, Louisville, Kentucky, Chairman; Dr

W. F. Draper, Washington, D. C.; and Dr. Felix J. Underwood, Jackson, Mississippi.

The Nominating Committee reported the following nominations for officers, the nominees being duly elected by vote of the members present:

President—Dr. I. C. Riggin, State Health Commissioner, Richmond, Virginia.
First Vice-President—Dr. C. J. Vaughn, Health Officer, Holmes County, Lexington, Mississippi.
Second Vice-President—Miss Frances Montgomery, Director of Public Health Nursing, State Board of Health, Montgomery, Alabama.
Third Vice-President—Mr. M. C. Baer, Director of Sanitary Engineering, State Board of Health, Little Rock, Arkansas.
Secretary-Treasurer—Dr. G. F. McGinnes, Epidemiologist, State Board of Health, Richmond, Virginia.

Dr. I. C. Riggin was escorted to the chair by Dr. McCormack and Dr. Draper.

The Association then adjourned *sine die*.

NATIONAL MALARIA COMMITTEE

Meeting conjointly with the Southern Medical Association

Officers

Honorary Chairman—Dr. L. O. Howard, Washington, D. C.
Chairman—Dr. Louis L. Williams, Jr., Washington, D. C.
Chairman-Elect—Dr. Herbert C. Clark, Panama, Rep. of Panama.
Vice-Chairman—Dr. J. W. Brown, Austin, Texas.
Secretary-Treasurer—Dr. Mark L. Boyd, Tallahassee, Florida.

Wednesday, November 20, 2:00 p. m.

The eighteenth annual meeting of the National Malaria Committee convened in business session at the Statler Hotel, Room 106, St. Louis, Missouri, and was called to order by the Chairman, Dr. Louis L. Williams, Jr., Washington, D. C., who presided.

The minutes of the 1934 session held in San Antonio, Texas, were approved as distributed in mimeograph form to the membership.

The Chairman appointed the following committees: Auditing, Mr. E. L. Filby, Kansas City, Missouri; Mr. N. H. Rector, Jackson, Mississippi; and Dr. George E. Riley, Jackson, Mississippi. Nominating, Dr. T. H. D. Griffitts, Jacksonville, Florida; Dr. S. S. Cook, Washington, D. C.; and Mr. G. H. Bradley, Orlando, Florida.

The report of the Secretary-Treasurer showed thirty-one new members since last year, the membership roster now having one hundred and forty-eight active members and nineteen honorary, a total membership of one hundred and sixty-seven. The report also showed for the first time the Committee had defrayed actual cost of the reprints of the Malaria Symposium in the Southern Medical Journal which were distributed to the members.

It was moved and carried that the State reports from the Sub-Committee on Malaria Prevention Activities be filed with the Secretary without reading.

Dr. Charles F. Craig, Chairman of the Sub-Committee on Research, moved the report of his Committee be filed with the Secretary without reading. The motion carried.

Mr. N. H. Rector presented the report of the Sub-Committee on Engineering.

Mr. G. H. Bradley submitted the report of the Sub-Committee on Entomology.

Dr. C. P. Coogle presented the report of the Sub-Committee on Industrial Relations.

Dr. S. S. Cook and Dr. C. C. Dauer presented the report of the Sub-Committee on Epidemiology, which included a review of malaria mortality in the Southern United States for 1934.

Sub-Committee on Auditing approved the report of the Treasurer and recommended an honorarium of $50.00 be allowed his stenographer. It was so moved and carried.

The Sub-Committee on Nominations submitted the following nominations for officers, the Secretary being instructed, by motion, to cast the unanimous ballot of the Committee for the Nominees:

Honorary Chairman—Dr. L. O. Howard, Washington, D. C.
Chairman—Dr. Herbert C. Clark, Panama, Republic of Panama.
Chairman-Elect—Dr. W. V. King, Orlando, Florida.
Vice-Chairman—Dr. George E. Riley, Jackson, Mississippi.
Secretary-Treasurer—Dr. Mark F. Boyd, Tallahassee, Florida.

The Committee then adjourned until 2:00 p. m. Thursday.

Thursday, November 21, 2:00 p. m.

Joint session with the American Society of Tropical Medicine.

The Committee in joint session with the American Society of Tropical Medicine met in Room D, Exposition Floor, Municipal Auditorium, St. Louis, Missouri, and was presided over jointly by Dr. Louis L. Williams Jr., Chairman, National Malaria Committee and Dr. Edward B. Vedder, President, American Society of Tropical Medicine.

Paper by Dr. Clay G. Huff and Dr. William Bloom, University of Chicago School of Medicine, Chicago, Illinois, entitled "*Plasmodium elongatum*, a Parasite not restricted to Erythrocytes" (Microscope Demonstration and Lantern Slides), was read by Dr. Huff and was discussed by Dr. Henry E. Meleney, Nashville, Tennessee; and Dr. Wendell Gingrich, Galveston, Texas.

Dr. Mark F. Boyd, Rockefeller Foundation, Tallahassee, Florida, read a paper entitled "The Schizogonous Cycle of *Plasmodium vivax*" (Lantern Slides), which was discussed by Dr. Charles F. Craig, New Orleans, Louisiana; Dr. Henry E. Meleney, Nashville, Tennessee; and Dr. John F. Kessell, Los Angeles, California.

Paper by Dr. M. M. Hargraves and Dr. Louis Lowenstein, Ohio State University School of Medicine, Columbus, Ohio, entitled "The Cytologic Response of the Hemopoietic Tissues to Malaria Inoculata" (Lantern Slides), was read by Dr. Hargraves and was discussed by Dr. Henry E. Meleney, Nashville, Tennessee.

Paper by Dr. William H. Taliaferro and Dr. Paul R. Cannon, University of Chicago, Chicago, Illinois, entitled "Cellular Reaction against *Plasmodium brazilianum*" was read by Dr. Taliaferro and was discussed by Dr. Herbert C. Clark, Panama, Republic of Panama.

Dr. J. P. Sanders, Caspania, Louisiana, read a paper entitled "Treatment of Malaria by the Short Course Method: A Comparison of the Cinchona Alkaloids (Quinine, Quinidine, Cinchonine, Cinchonidine, Hydrocinchonine, Hydrocinchonidine and Hydroquinine) and Atabrine" (Lantern Slides), which was discussed by Dr. W. T. Dawson, Galveston, Texas; Dr. Herbert C. Clark, Panama, Republic of Panama; and Dr. Louis L. Williams, Jr., Washington, D. C.

Dr. E. Harold Hinman, Louisiana State University Medical Center, New Orleans, Louisiana, read a paper entitled "Studies upon the Problem of Races of *Anopheles quadrimaculatus* Say in the United States," which was discussed by Dr. Mark F. Boyd, Tallahassee, Florida.

Dr. M. C. Balfour, International Health Division, Rockefeller Foundation, Athens, Greece, read a paper entitled "Some Features of the Epidemiology of Malaria in Greece and Experience with its Control."

Dr. Paul F. Russell, Staff Member, International Health Division, Rockefeller Foundation, New York, New York, read a paper entitled "Malaria in India."

Dr. Warren K. Stratman-Thomas, Laboratories of the International Health Division, Rockefeller Institute, New York, New York, read a paper entitled "The Effect of Temperature on the Sporogonous Cycle of *Plasmodium vivax*" (Lantern Slides), which was discussed by Dr. Paul R. Russell, New York, New York.

The following papers were read by title: "Biological Factors in Malaria Control" by Dr. Lewis W. Hackett, The Rockefeller Foundation, Rome, Italy; and "The Occurrence of Avian Malarias in Nature" by Dr. R. G. Manwell, Syracuse University College of Medicine, Syracuse, New York.

The Committee then adjourned until 9:00 a. m. Friday.

Friday, November 22, 9:00 a. m.

The Committee met in Room D, Exposition Floor, Municipal Auditorium, St. Louis, Missouri, and was called to order by Dr. Louis L. Williams, Jr., who read his Chairman's Address entitled "Factors Concerned in Malaria Control by Drug Treatment," which was discussed by Dr. Herbert C. Clark, Panama, Republic of Panama.

Paper by Mr. W. H. W. Komp, Sanitary Engineer, U.S.P.H.S., Ancon, Canal Zone, and Dr. Herbert C. Clark, Director, Gorgas Memorial Laboratory, Panama, Republic of Panama, entitled "A Fifth Year's Observation on Malaria in Panama with Reference to the Failure of Atabrine to Control an Epidemic" was read by Mr. Komp and was discussed by Dr. D. L. Seckinger, Atlanta, Georgia; Dr. Paul F. Russell, New York, New York; Dr. M. C. Balfour, Athens, Greece; Dr. T. H. D. Griffitts, Jacksonville, Florida; Dr. Mark F. Boyd, Tallahassee, Florida; Dr. Herbert C. Clark, Panama, Republic of Panama; and Dr. J. N. Baker, Montgomery, Alabama.

Dr. Robert B. Watson, Malariologist, Health Section, Tennessee Valley Authority, Wilson Dam, Alabama, read a paper entitled "Observations on Airplane Dusting" (Lantern Slides and Moving Pictures).

Mr. C. C. Kiker Associate Sanitary Engineer Health Section, Tennessee Valley Authority, Wilson Dam, Alabama, read a paper entitled "Observations on Mosquito Control on Lake Wilson, Tennessee River" (Lantern Slides and Moving Pictures).

The papers of Dr. Watson and Mr. Kiker were discussed by Dr. V. G. Presson, Tucson, Arizona; Dr. Paul F. Russell, New York, New York; Dr. S. S. Cook, Washington, D. C.; Dr. J. N. Baker Montgomery, Alabama; and Dr. C. H. Kibbey, Fairfield, Alabama.

Paper by Dr. Mark F. Boyd and Dr. S. F. Kitchen, International Health Division, Rockefeller Foundation, and the Florida State Board of Health, Tallahassee, Florida, entitled "On the Efficiency of the Homologous Properties of Acquired Immunity to *Plasmodium vivax*" (Lantern Slides) was read by Dr. Boyd.

Mr. H. A. Johnson, U.S.P.H.S., Memphis, Tennessee, read a paper entitled "Notes on the Occurrence of *A. walkeri.*"

Mr. G. H. Bradley, Bureau of Entomology, U. S. Department of Agriculture, Orlando, Florida, read a paper entitled "On the Occurrence of *A. walkeri* Theobald in Florida."

The papers of Mr. Johnson and Mr. Bradley were discussed by Dr. Mark F. Boyd, Tallahassee, Florida, and Mr. J. A. LePrince, Memphis, Tennessee.

The Committee on Resolutions presented a resolution on the death of Dr. George E. Bethel, a member of the Committee; also resolution making effective the increase of dues to $2.00 per year presented at the meeting at San Antonio last year and which had laid on the table for one year. The resolutions were adopted.

The Committee then adjourned *sine die.*

AMERICAN SOCIETY OF TROPICAL MEDICINE

Meeting conjointly with Southern Medical Association

Officers

President—Dr. Edward B. Vedder, Washington, D. C.
President-Elect—Dr. Henry E. Meleney, Nashville, Tennessee.
Vice-President—Dr. Lewis W. Hackett, Rome, Italy.
Secretary-Treasurer—Dr. Alfred C. Reed, San Francisco, California.
Editor—Dr. Charles F. Craig, New Orleans, Louisiana.

Wednesday, November 20, 9:00 a. m. and 2:00 p. m.

The Society met in the Statler Hotel, Daniel Boone Room, St. Louis, Missouri, for two scientific sessions, Dr. Edward B. Vedder, President, Washington, D. C., presiding. A special feature of the afternoon session was an address by Dr. N. Hamilton Fairley, London School of Hygiene and Tropical Medicine, London, England, on the subject, "Recent Advances and Hiatuses in Our Knowledge of Tropical Sprue."

Wednesday, November 20, 7:30 p. m.

The American Academy of Tropical Medicine, meeting with the American Society of Tropical Medicine, held its dinner and business meeting in the Statler Hotel, Adam Room. The President of the Academy, Dr. Charles F. Craig, Tulane University School of Medicine, New Orleans, Louisiana, read his President's Address entitled "The Necessity for More Accurate Statistics Regarding the Distribution of Tropical Diseases in the United States."

Thursday, November 21, 9:00 a. m. and 12:15 p. m.

The Society met in joint session with the American Academy of Tropical Medicine in the Statler Hotel, Daniel Boone Room, St. Louis, Missouri, at 9:00 a. m., for a scientific session, the President, Dr. Vedder, presiding. The program included a symposium on the economic and social features of tropical medicine in the United States. The annual luncheon of the Society was held at the Statler Hotel, Assembly Room, 12:15 noon, at which time the President, Dr. Vedder, delivered his President's Address entitled "The Development of Tropical Medicine in the United States."

Thursday, November 21, 2:00 p. m.

The Society met in joint scientific session with the National Malaria Committee in Room D, Exposition Floor, Municipal Auditorium, St. Louis, Missouri, and was presided over jointly by Dr. Edward B. Vedder, President, American Society of Tropical Medicine, and Dr. Louis L. Williams, Jr., Chairman, National Malaria Committee.

Friday, November 22, 9:00 a. m.

The last session of the Society was held in the Statler Hotel, Daniel Boone Room, St. Louis, and was called to order by the President, Dr. Vedder, who presided. The first part of the session was devoted to a business meeting of the Society and the remainder to the conclusion of the scientific program.

At the business session the following officers were elected for the ensuing year:

President—Dr. Henry E. Meleney, Vanderbilt University School of Medicine, Nashville, Tennessee.

President-Elect—Dr. Herbert C. Clark, Gorgas Memorial Laboratory, Panama, Republic of Panama.

Vice-President—Dr. Alfred C. Reed, Pacific Institute of Tropical Medicine, University of California, San Francisco, California.

Secretary-Treasurer—Dr. N. Paul Hudson, Ohio State University School of Medicine, Columbus, Ohio.

Editor—Dr. Charles F. Craig, Tulane University School of Medicine, New Orleans, Louisiana.

Councilors—

Dr. Thomas B. Magath, Mayo Clinic, Rochester, Minnesota.
Dr. Sterling S. Cook, U. S. Naval Medical Corps, Washington, D. C.
Dr. Earl B. McKinley, George Washington University School of Medicine, Washington, D. C.
Dr. George W. Bachman, University of Puerto Rico School of Tropical Medicine, San Juan, Puerto Rico.
Dr. Louis L. Williams, Jr., United States Public Health Service, Washington, D. C.
Dr. Mark F. Boyd, Rockefeller Foundation, Tallahassee, Florida.
Dr. Thomas T. Mackie, Cornell University School of Medicine, New York, New York.
Dr. Malcolm H. Soule, University of Michigan School of Medicine, Ann Arbor, Michigan.

The American Academy of Tropical Medicine at St. Louis formed the American Foundation of Tropical Medicine for the purpose of raising funds to encourage research in this field. The Board of Directors is composed of men of wealth and influence in this country. Its Chairman is Dr. Isaiah Bowman, President of Johns Hopkins University, Baltimore, Maryland.

The American Society of Tropical Medicine and the American Academy of Tropical Medicine are each in process of establishing a medal to be awarded for notable achievement in tropical medicine.

It was decided to hold the next annual meeting of the Society in conjunction with the annual meeting of the Southern Medical Association at Baltimore, Maryland, in November, 1936.

ALLERGY CLINIC AND ROUND TABLE

Meeting conjointly with Southern Medical Association

Officers

Chairman—Dr. Marion T. Davidson, Birmingham, Alabama.
Vice-Chairman—Dr. C. Malone Stroud, St. Louis, Missouri.
Secretary—Dr. Charles H. Eyermann, St. Louis, Missouri.

Thursday, November 21, 9:00 a. m.

The Allergy Clinic and Round Table met in the Municipal Auditorium, Room C, Exposition Floor, St. Louis, Missouri, and was called to order by the Chairman, Dr. Marion T. Davidson, Birmingham, Alabama, who presided.

Dr. Clarence K. Weil, Montgomery, Alabama, read a paper entitled "Hay Fever in Alabama: Analysis of One Hundred Cases," which was discussed by Dr. Marion T. Davidson, Birmingham, Alabama; Dr. Hal M. Davison, Atlanta, Georgia; and in closing by the essayist

The Chairman appointed the following Nominating Committee: Dr. J. Harvey Black, Dallas, Texas; Dr. Charles H. Eyermann, St. Louis, Missouri; and Dr. French K. Hansell, St. Louis, Missouri.

Dr. Edna S. Pennington, Nashville, Tennessee, read a paper entitled "An Evaluation of the Relative Role of Fungi (Trichophytin) and Other Allergens in Patients with 'Allergic Der-

matitis'," which was discussed by Dr. C. Malone Stroud, St. Louis, Missouri; Dr. William H. Harris, New Orleans, Louisiana; Dr. Alan G. Cazort, Little Rock, Arkansas; Dr. Louise M. Ingersol, Asheville, North Carolina; and in closing by the essayist.

Dr. Alfred M. Goltman, Memphis, Tennessee, read a paper entitled "The Mechanism of Migraine," which was discussed by Dr. R. E. Semmes, Memphis, Tennessee; Dr. Harry L. Alexander, St. Louis, Missouri; Dr. Ray M. Balyeat, Oklahoma City, Oklahoma; Dr. Warren T. Vaughan, Richmond, Virginia; and in closing by the essayist.

Dr. Alan G. Cazort, Little Rock, Arkansas, read a paper entitled "The House Dust Antigen in Allergy," which was discussed by Dr. Milton B. Cohen, Cleveland, Ohio; and in closing by the essayist.

Paper by Dr. Hal M. Davison, Dr. Mason I. Lowance and Dr. Crawford L. Barnett, Atlanta, Georgia, entitled "The Medical Treatment of Allergic Diseases," was read by Dr. Davison and was discussed by Dr. Clarence K. Weil, Montgomery, Alabama; Dr. Milton B. Cohen, Cleveland, Ohio; Dr. Alfred M. Goltman, Memphis, Tennessee; Dr. I. S. Kahn, San Antonio, Texas; and in closing by Dr. Davison.

Dr. Herbert J. Rinkel, Kansas City, Missouri, read a paper entitled "The Treatment of Seasonal Hay Fever, No. II, The Value of a Prescribed Diet as an Adjunct to Specific Pollen Therapy" (Lantern Slides), which was discussed by Dr. Charles H. Eyermann, St. Louis, Missouri; Dr. Warren T. Vaughan, Richmond, Virginia; and in closing by the essayist.

Dr. J. J. Bronfenbrenner, St. Louis, Missouri, read a paper entitled "The Immunological Aspects of Allergy."

Following the Scientific program, a business session was held.

The Chairman requested the report of the committee formed to determine the feasibility of this group asking the Southern Medical Association to make it an official section. Committee consisted of the officers, Dr. Marion T. Davidson, Birmingham, Alabama; Dr. C. Malone Stroud, St. Louis, Missouri; and Dr. Charles H. Eyermann, St. Louis, Missouri. Report was given by Dr. Eyermann to the effect that it was the unanimous opinion of the Committee that for the present this group should remain an independent organization and meet conjointly with the Southern Medical Association. It was moved by Dr. Warren T. Vaughan, Richmond, Virginia, that the report be adopted, seconded by Dr. Alan G. Cazort, Little Rock, Arkansas, and adopted by a viva voce vote.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by a vote of the Section:

Chairman—Dr. Hal M. Davison, Atlanta, Georgia.
Vice-Chairman—Dr. Alan G. Cazort, Little Rock, Arkansas.
Secretary—Dr. Charles H. Eyermann, St. Louis, Missouri.

The Allergy Clinic and Round Table then adjourned *sine die*.

SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE

Southern Section and Missouri Section

Meeting conjointly with the Southern Medical Association

Officers of Southern Section

Chairman—Dr. Harold Cummins, New Orleans, Louisiana.
Vice-Chairman—Dr. Roy H. Turner, New Orleans, Louisiana.
Secretary—Dr. Alton Ochsner, New Orleans, Louisiana.

Officers of Missouri Section

Chairman—Dr. E. A. Doisy, St. Louis, Missouri.
Secretary—Dr. G. H. Bishop, St. Louis, Missouri.

Tuesday, November 19, 2:00 p. m.

The Southern Section and the Missouri Section of the Society for Experimental Biology and Medicine, meeting conjointly with the Southern Medical Association, met in Room B, Exposition Floor, Municipal Auditorium, St. Louis, Missouri, the session being devoted exclusively to the presentation and discussion of scientific subjects.

AMERICAN ACADEMY OF PEDIATRICS

Regions 2 and 3

Meeting conjointly with the Southern Medical Association

Officers

Chairman, Region 2—Dr. Edward Clay Mitchell, Memphis, Tennessee.
Chairman, Region 3—Dr. H. F. Helmholz, Rochester, Minnesota.

Monday and Tuesday, November 18 and 19

The American Academy of Pediatrics, Regions 2 and 3, held a joint session, meeting conjointly with the Southern Medical Association, at the Hotel Chase, St. Louis, Missouri.

On Monday two clinical sessions were held, at 9:00 a. m. and 2:00 p.m. The presentations in the forenoon were made by the staff of the Washington University School of Medicine, and in the afternoon by the staff of the St. Louis University School of Medicine.

On Monday evening at 6:30 the annual banquet was held at the Hotel Chase.

On Tuesday at 9:00 a. m. there were held separately, the regular business meetings of Region 2 and Region 3. At these meetings the reports of the State Chairmen were made and fully discussed.

On Tuesday at 2:00 p. m. there was a clinical session, the presentation being made by the Medical Department of Washington University School of Medicine. At the conclusion of the clinical session the Academy adjourned *sine die*.

This was the most successful regional meeting ever held by the Academy, there being 292 members registered. The membership present at this regional meeting was very much the same as composed the former Central States Pediatric Society which went out of existence when the Academy was organized.

At the business meeting of Region 2, a motion was made and carried extending thanks to the Secretary-Manager and other officers of the Southern Medical Association for assistance rendered the Academy in making this meeting possible, and assuring these officers that Region 2 of the Academy desired to cooperate with the Southern Medical Association and its Section on Pediatrics in every way possible.

SOUTHERN ASSOCIATION OF ANESTHETISTS

MID-WESTERN ASSOCIATION OF ANESTHETISTS

INTERNATIONAL ANESTHESIA RESEARCH SOCIETY

Joint Regional Meeting, meeting conjointly with Southern Medical Association

Officers, Southern Association of Anesthetists

President—Dr. H. Boyd Stewart, Tulsa, Oklahoma.
President-Elect—Dr. Joseph McNearney, Maplewood, Missouri.
Vice-President—Dr. Eldon B. Tucker, Morgantown, West Virginia.
Secretary-Treasurer—Dr. Wm. Hamilton Long, Louisville, Kentucky.

Officers, Mid-Western Association of Anesthetists

President—Dr. J. Stanley Gardner, Lakewood, Ohio.
President-Elect—Dr. Robt. L. Charles, Denver, Colorado.
Vice-President—Dr. Reuben Maurits, Grand Rapids, Michigan.
Secretary-Treasurer—Dr. B. H. Harms (D.D.S.), Omaha, Nebraska.

Officers, International Anesthesia Research Society

President-Elect—Dr. W. E. Burge (Ph.D.), University of Illinois, Urbana, Illinois.
Chairman Board of Governors—Dr. John H. Evans, Buffalo, New York.
Vice-Chairman—Dr. E. Klaus, Cleveland, Ohio.
Secretary-General—Dr. F. H. McMechan, Rocky River, Ohio.

The Joint Regional Meeting of the Southern and Mid-Western Associations of Anesthetists and the International Anesthesia Research Society was held at the Hotel Statler, St. Louis, Missouri, November 18-21, 1935, in conjunction with the meeting of the Southern Medical Association under the joint Presidencies of

Dr. Joseph McNearney, Maplewood, Missouri (Southern), Dr. Robert L. Charles, Denver, Colorado (Mid-Western), and Dr. W. E. Burge, Urbana, Illinois (I. A. R. S.).

Following the presentation of the historic gavels of the several societies by the retiring presidents and their acceptance by the incoming presidents, the complete scientific program as scheduled in the official program of the Southern Medical Association was presented without an absentee (pages 1063-1064 Southern Medical Journal, November, 1935). Special sessions of the program were devoted to miscellaneous topics, teaching anesthesia, status of the specialty, anesthesia in dentistry and oral surgery, current researches, newer anesthetics and methods of anesthesia for the specialty.

Anesthesia Clinics were held at Firman Desloge Hospital, St. Mary's Hospital and St. Anthony's Hospital by St. Louis anesthetists, who demonstrated the routine and newer methods of anesthesia. There was also a joint session with the St. Louis Dental Society devoted to anesthesia in dentistry and oral surgery.

During the annual dinner on Wednesday evening official greetings were extended by the presidents of the several societies. A silver plaque of recognition and appreciation was presented to Sterling V. Mead, D.D.S., Washington, D. C., for his recent textbook on "Anesthesia in Dental Surgery," and the silver loving cup of fellowship was presented to Floyd T. Romberger, Lafayette, Indiana, for his services to the specialty. Dr. F. H. McMechan, Secretary-General, acted as toastmaster.

During the business session on Monday afternoon the following officers were elected for the coming year:

Southern Association of Anesthetists: Dr. Joseph McNearney, Maplewood, Missouri, President; Dr. Eldon B. Tucker, Morgantown, West Virginia, President-Elect; Dr. Joseph P. Bogan, Washington, D. C., Vice-President; Dr. Wm. Hamilton Long, Louisville, Kentucky, Secretary-Treasurer; and Executive Committee Members: Dr. Thomas J. Collier, Atlanta, Georgia; Dr. C. Wm. Hoeflich, Houston, Texas; Dr. C. E. Kidd, Paducah, Kentucky; Dr. Frank H. Bassett, Hopkinsville, Kentucky; Dr. Cline N. Chipman, Washington, D. C.; and Dr. H. Boyd Stewart, Tulsa, Oklahoma.

Mid-Western Association of Anesthetists: Dr. Robert L. Charles, Denver Colorado, President; Dr. Huberta Livingstone, Chicago, Illinois, President-Elect; Dr. C. E. Richmond, Colorado Springs, Colorado, Vice-President; Dr. B. H. Harms, Omaha, Nebraska, Secretary-Treasurer; and Executive Committee Members: Dr. Frank Hurwitt, Kansas City, Missouri; Dr. Floyd T. Romberger, Lafayette, Indiana; Dr. Fred W. Clement, Toledo, Ohio; Dr. Chas. N. Combs, Terre Haute, Indiana; Dr. E. Klaus, Cleveland, Ohio; and Dr. J. Stanley Gardner, Lakewood, Ohio.

The attendance for this Joint Regional Meeting was one of the largest ever recorded for a regional meeting. The next place of meeting was left to the decision of the officers of the several societies, although every hope was expressed of meeting again with the Southern Medical Association.

The visiting ladies were entertained at special luncheons and theatre parties of the anesthetists meeting, as well as at all the social functions of the Southern Medical Association.

Organized anesthesia extends its most grateful appreciation to the Southern Medical Association and to the medical profession of St. Louis, and their wives, for all the friendliness and courtesies extended during the St. Louis meeting.

WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION

Officers

President—Mrs. J. Bonar White, Atlanta, Georgia.
President-Elect—Mrs. Oliver W. Hill, Knoxville, Tennessee.
First Vice-President—Mrs. Frank N. Haggard, San Antonio, Texas.
Second Vice-President—Mrs. W. K. West, Oklahoma City, Oklahoma.
Recording Secretary—Mrs. Francis E. LeJeune, New Orleans, Louisiana.
Corresponding Secretary—Mrs. Eustace A. Allen, Atlanta, Georgia.
Treasurer—Mrs. A. G. Wilde, Jackson, Mississippi.
Historian—Mrs. Southgate Leigh, Norfolk, Virginia.
Parliamentarian—Mrs. Edward Jelks, Jacksonville, Florida.

Tuesday, November 19, 9:30 a. m.

The Pre-Convention Board meeting of the Woman's Auxiliary to the Southern Medical Association was called to order by the President, Mrs. J. Bonar White, Atlanta, Georgia, who presided. Twenty-five were present.

A message from the President-Elect, Mrs. Oliver W. Hill, Knoxville, Tennessee, was read, Mrs. Hill being absent on account of illness in her home.

The most important decisions of the Pre-Convention Board were on increase of the budget to allow for necessary committee work and on the revision of the Constitution and By-Laws.

Wednesday, November 20, 12:30 noon

The first session of the twelfth annual meeting of the Woman's Auxiliary to the Southern Medical Association met in the Jefferson Hotel, Crystal Room, St. Louis, Missouri, and was called to order by the President, Mrs. J. Bonar White, who presided. This opening meeting was in the form of a luncheon.

Mrs. Earl D. McBride, Oklahoma City, Oklahoma, delivered the invocation.

Mrs. Joseph M. Trigg, St. Louis, President of the Woman's Auxiliary to the St. Louis Medical Society, gave an address of welcome.

Mrs. M. Pinson Neal, Columbia, Missouri, President of the Woman's Auxiliary to the Missouri State Medical Association, gave an address of welcome.

Mrs. John A. Beals, Greenville, Mississippi, responded to the addresses of welcome.

Dr. H. Marshall Taylor, Jacksonville, Florida, President of the Southern Medical Association, was presented and spoke on membership and complimented the Auxiliary on its service to the medical profession.

Dr. Arthur A. Herold, Shreveport, Louisiana, a member of the Advisory Committee, spoke on the way the Auxiliary members could serve as a reserve force in legislation when requested by the medical profession.

Mrs. Rogers N. Herbert, Nashville, Tennessee, President of the Woman's Auxiliary to the American Medical Association, gave an address on "Concentration, Cooperation, Consecration."

The President, Mrs. White, made three group introductions: The Hostess Chairmen; the Officers and Chairman of the Auxiliary to the Southern Medical Association; and the Presidents of the State Auxiliaries.

The President announced the appointment of the members of four committees: Auditing, Memorial, Resolution, and Nominating.

Mrs. R. C. Kory, Little Rock, Arkansas, introduced the distinguished guests and members including Mrs. H. Marshall Taylor, Jacksonville, Florida, wife of the President of the Southern Medical Association; Mrs. Charles C. Tomlinson, Omaha, Nebraska, Recording Secretary to the Woman's Auxiliary to American Medical Association; Mrs. S. C. Red, Houston, Texas; Mrs. Seale Harris, Birmingham, Alabama; Mrs. John O. McReynolds, Dallas, Texas; Mrs. Arthur A. Herold, Shreveport, Louisiana; Mrs. David W. Goldstein, Fort Smith, Arkansas; Mrs. V. E. Holcombe, Charleston, West Virginia; Mrs. J. S. Jordan, Birmingham, Alabama; Mrs. William Hibbitts, Texarkana, Arkansas; Mrs. Dan J. Williams, Gulfport, Mississippi; Mrs. S. A. Collom, Sr., Texarkana, Texas; Mrs. Charles E. Oates, North Little Rock, Arkansas; Mrs. Southgate Leigh, Norfolk, Virginia; Mrs. Arthur T. McCormack, Louisville, Kentucky.

Mrs. Louis E. Printy, President, Woman's Club of the St. Louis University School of Medicine, extended an invitation to all ladies attending the Southern Medical Association to a tea and fashion show to be given by the Woman's Club at St. Mary's Hospital School of Nursing from 4:00 p. m. to 6:00 p. m.

The general meeting adjourned and was immediately followed by a Round Table Conference, Mrs. Frank N. Haggard, San Antonio, Texas, First Vice-President, presiding. Subjects presented and discussed were: Organization, plans and suggestions, Mrs. J. Bonar White, President, Atlanta, Georgia; Health Education, Mrs. V. E. Holcombe, Charleston West Virginia; Hygeia, Mrs. R. N. Herbert, Nashville, Tennessee; and History, Mrs. William Hibbitts, Texarkana, Arkansas.

Adjournment was taken at 2:50 p. m.

Thursday, November 21, 9:30 a. m.

The twelfth annual meeting of the Woman's Auxiliary to the Southern Medical Association was held at the Jefferson Hotel, Crystal Room, St. Louis, Missouri, and was called to order by the President, Mrs. White, who presided.

Reverend Arnold H. Lowe, D.D., Pastor of the Kingshighway Presbyterian Church, St. Louis, Missouri, delivered the invocation.

It was moved and carried that the 1934 minutes be not read, as they had been approved at San Antonio and published.

A Memorial Service for deceased members was conducted by Mrs. Harvey F. Garrison, Jackson, Mississippi. Mrs. E. L. Coffin, St. Louis, rendered a vocal solo, and the visiting minister, Reverend Arnold H. Lowe, offered prayer. Among those for whom this service was given was Mrs. Preston Hunt, who was President of the Woman's Auxiliary to the Texas State Medical Association when the Southern Medical Association met in San Antonio in 1934.

Dr. Seale Harris, Chairman of the Advisory Committee, addressed the Auxiliary.

Mr. C. P. Loranz, Secretary, Treasurer and General Manager of the Southern Medical Association, spoke on the action of the Council in regard to a suggested change in the organization plan of the Auxiliary as suggested by him.

It was moved and seconded that the action of the Council be referred to the Executive Committee and Advisory Council of the Auxiliary.

Mrs. Edward Jelks, Jacksonville, Florida, Parliamentarian, presented Rules and Regulations as supported by the Constitution and By-Laws, which were adopted.

Mrs. S. A. Collom, Sr., Texarkana, Texas, Chairman of the Committee on Research, made a report and distributed pamphlets on material available.

A recommendation was adopted that the report on changes in the Constitution and By-Laws be deferred until the Executive Committee and the Advisory Council had reported on the changes suggested by the Council.

The following reports were presented and accepted: Entertainment, Mrs. Joseph M. Trigg, St. Louis, Missouri; Historian, Mrs. Southgate Leigh, Norfolk, Virginia; Archives, Mrs. A. T. McCormack, Louisville, Kentucky; Jane Todd Crawford Memorial, Mrs. C. W. Garrison, Little Rock, Arkansas; Registration and Credentials, Mrs. John Zahorsky, St. Louis, Missouri.

The report of the President, Mrs. J. Bonar White, was accepted with a rising vote of appreciation.

Reports were made by the following officers: President-Elect, Mrs. Oliver W. Hill, Knoxville, Tennessee, read by the Secretary; First Vice-President, Mrs. Frank N. Haggard, San Antonio, Texas; Second Vice-President Mrs. W. K. West, Oklahoma City, Oklahoma; Corresponding Secretary, Mrs. Eustace A. Allen, Atlanta, Georgia, read by the Secretary; Treasurer, Mrs. A. G. Wilde, Jackson, Mississippi. The report of the President-Elect showed 190 Auxiliaries with a membership of 5,299. Mrs. A. L. Levine, New Orleans, Louisiana, reported for the Auditing Committee. All reports were accepted and filed.

The Secretary was instructed to send a telegram to the incoming President, Mrs. Oliver W. Hill, Knoxville, Tennessee, who was absent on account of illness in her home.

Mrs. David S. Long, Harrisonville, Missouri, Chairman of Public Relations of the Woman's Auxiliary to the American Medical Association, gave an address on the work of her Committee.

Reports were made by the following State Presidents: Mrs. J. S. Jordan, Alabama; Mrs. Marcus Smith, Arkansas; Mrs. E. W. Veal, Florida; Mrs. Luther Bach, Kentucky; Mrs. Leon S. Lippincott, Mississippi; Mrs. M. Pinson Neal, Missouri; Mrs. Carroll M. Pounders, Oklahoma; Mrs. Robert Reaves, Tennessee; Mrs. S. M. Prunty, West Virginia. Other states were represented by delegates.

Telegrams and letters of greetings were received from Mrs. Francis E. LeJeune, New Orleans, Louisiana; Mrs. L. L. Polk, Purvis, Mississippi; Mrs. George H. Hoxie, Kansas City, Missouri; Mrs. A. B. McGlothlan, St. Joseph, Missouri; and Mrs. J. N. Brawner, Atlanta, Georgia.

Mrs. S. M. Prunty, Parkersburg, West Virginia, Chairman of Committee on Resolutions, presented resolutions of thanks and appreciation to the Auxiliary of the St. Louis Medical Society and to its President, Mrs. Joseph M. Trigg; to the Southern Medical Association and its Secretary-Manager, Mr. C. P. Loranz; to the Jefferson Hotel, and to the Press; which were adopted by a a rising vote.

Mrs. Lee W. Roe, Mobile, Alabama, Chairman of the Nominating Committee, presented the report for her Committee. No nominations from the floor, the following nominees were elected and installed:

President—Mrs. Oliver W. Hill, Knoxville, Tennessee.
President-Elect—Mrs. Frank N. Haggard, San Antonio, Texas.
First Vice-President—Mrs. S. M. Prunty, Parkersburg, West Virginia.
Second Vice-President—Mrs. Joseph M. Trigg, St. Louis, Missouri.
Recording Secretary—Mrs. C. B. Erickson, Shreveport, Louisiana.
Corresponding Secretary—Mrs. W. A. Shelton, Knoxville, Tennessee.
Treasurer—Mrs. E. W. Veal, South Jacksonville, Florida.
Historian—Mrs. Harvey F. Garrison, Jackson, Mississippi.
Parliamentarian—Mrs. E. V. Caldwell, Huntsville, Alabama.

In the absence of the new President, Mrs. Oliver W. Hill, Mrs. White, the retiring President, presented the gavel to Mrs. S. M. Prunty, the newly elected First Vice-President.

A rising vote of thanks was given the President and other officers and chairmen for 1934-35.

The annual meeting of the Auxiliary then adjourned *sine die*.

Book Reviews

Continued from page 91

Diseases of the Liver, Gallbladder, Duct and Pancreas: Their Diagnosis and Treatment. By Samuel Weiss, M.D., F.A.C.P., Clinical Professor of Gastroenterology, New York Polyclinic Medical School and Hospital. Chapter on Surgery by J. Prescott Grant, M.D., F.A.C.S., M.R.C.S., Professor of Surgery, New York Polyclinic Medical School and Hospital. Chapter on Roentgenology by A. Judson Quimby, M.D., F.A.C.R., Professor of Roentgenology, New York Polyclinic Medical School and Hospital; Visiting Roentgenologist, Broad Street Hospital. 1,099 pages, illustrated. New York: Paul B. Hoeber, Inc., 1935.

Sir William Osler once made the statement that "textbooks are out of date before they can be published." Not so with the monumental volume on "The Liver, Gallbladder, Ducts and Pancreas" by Weiss. This book, published in August, 1935, quotes from articles read during the Atlantic City meeting of the American Medical Association in June, 1935. Recent researches on the liver, gallbladder and pancreas relegate many of our former ideas on hepatic and pancreatic function into the limbo of things that were. There is, therefore, need for an up-to-date treatise on the subject. Chapters on anatomy, embryology and physiology show an understanding of the researches that have been carried on in experimental laboratories throughout the world. The book, however, is largely clinical since four-fifths of the 1,100 pages are devoted to the examination, laboratory methods and the therapy. Dietary management and medical treatment are stressed. The chapter on the x-ray diagnosis of gallbladder diseases by Judson Quimby, an authority on roentgenology, is a very valuable one. The surgery of the gallbladder and liver is thoroughly discussed by Prescott Grant, an eminent New York surgeon. He outlines in detail methods of preparing the gallbladder or liver patient for operation, the operative technic and the after treatment in cholecystectomy and other gallbladder and liver operations. Weiss's book is too voluminous to be adopted as a textbook for medical students, but the internist, general practitioner and surgeon will find it invaluable as a book of reference for any disease or disorder of the liver, gallbladder and pancreas. Likewise, the 100 pages of references will be of great assistance to one who is preparing a paper on any phase of the function, or dysfunction, of these organs.

Pneumonia Typing is Simple!

DIAGNOSIS—pneumonia! Pneumococcus pneumonia? Is serum therapy indicated? That depends on the type of the causative pneumococcus.

The physician calls for Rapid Typing sera ***Lederle,*** Types I and II, the types for which "Council-Accepted" therapeutic sera are available. Microscopic examination of a fleck of the patient's sputum mixed with the required amount of specific typing sera, reveals typical changes in the capsule—Neufeld reaction—in the mixture that identifies the type. These changes consist of a swelling of the capsule with a sharp definition of outline.

All in a few minutes! And therapeutic serum administration may be begun at once. Pictures of the significant capsular swelling are in the direction sheets in the ***Lederle*** packages. (If no such capsules are found, the efforts to identify the type can be carried further. ***Lederle*** has Typing sera for 29 types of pneumonia but full use of the series is usually regarded as requiring special technical training.)

Early administration is essential to secure the radical reductions of average mortality obtainable with serum therapy.

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Anti-Pneumococcic Serum *Lederle*, Bivalent, Type I and II, or Type I or Type II—10,000 and 20,000 Units.

Southern Medical News

ALABAMA

The Jefferson County Medical Society elected the following officers for the coming year: Dr. H. Earle Conwell, Birmingham, President; Dr. R. O. Russell, Birmingham, Vice-President.

The Jefferson County Medical Society had as guest speaker at a recent meeting Dr. Earle R. Carlson, New York, New York.

Deaths

Dr. Edgar Rand, Huntsville, aged 79, died September 8.

Dr. George Lipscomb Izard, Mobile, aged 69, died October 6, of colitis.

ARKANSAS

The Prairie County Medical Society elected the following officers for the coming year: Dr. Edward Adams, DeValls Bluff, President; Dr. J. G. Wilson, Ulm, Vice-President; Dr. J. C. Gillam, Des Arc, Secretary-Treasurer.

The Third Councilor District Medical Society elected the following officers for the coming year: Dr. J. O. Rush, Forrest City, President; Dr. E. A. Callahan, Carlisle, Vice-President; Dr. Thomas Wilson, Wynne, Secretary-Treasurer.

Dr. W. W. York, Ashdown, has been made Vice-President of the Tri-State Medical Society.

The Southwestern Branch of the American Urological Association met in Little Rock, November 15-16.

Dr. Ira Ellis, Monette, was recently elected Worthy Grand Patron of the Arkansas Grand Chapter, Order of Eastern Star.

Dr. Ralph M. Sloan, Jonesboro, has been elected a Fellow of the American College of Surgeons.

Dr. David LeVine, El Dorado, has been elected Vice-President of the Rotary Club of that city.

Dr. Clyde McNeil, Rogers, has been made a Director of the Chamber of Commerce.

Dr. D. E. White was recently elected a Director of the El Dorado Kiwanis Club.

Dr. Howell Brewer, Hot Springs National Park, has been made President of the National Guard Association of Arkansas.

Dr. O. J. T. Johnston, Batesville, has been made President of the Kiwanis Club of that city.

Dr. F. J. Scully, Hot Springs National Park, has been made Grand Conductor of the Grand Council of the Arkansas Royal and Select Master Masons.

The Washington County Medical Society had as guest speaker at a recent meeting Dr. Dale P. Osborn, Cincinnati, Ohio.

Dr. R. B. Robins, Camden, entertained the members of the Ouachita County Medical Society at dinner at his home.

The Benton County Medical Society had as guest speaker at a recent meeting Dr. George E. Knappenberger, Kansas City, Missouri.

Dr. Euclid Smith, Hot Springs National Park, has been appointed Chief of the Arthritis Clinic of the University of Arkansas School of Medicine, Little Rock.

Dr. D. W. Goldstein, Fort Smith, recently took special work in dermatology in St. Louis, Chicago and Minneapolis.

Dr. R. D. Dickins, Monticello, and Miss Anna Edwards were married October 17.

Dr. Thomas C. Guthrie, Smithville, and Mrs. Ora Ashburn were married recently.

Deaths

Dr. Emmett E. Irwin, Russellville, aged 58, died suddenly September 29.

Dr. John M Campbell, Russellville, aged 76, died August 28.

Dr. Jonathan W. Lewis, Driggs, aged 84, died recently of uremia and heart disease.

Dr. Manley Holland Russell, Star City, aged 62, died October 25.

DISTRICT OF COLUMBIA

Dr. Hugh S. Cumming, Washington, Surgeon General, U. S. Public Health Service, was appointed by the League of Na-

Continued on page 26

Read Ye, Doctor, Read Ye!

The Program Is Complete In Every Detail.
The Prospectus Will Shortly Be In Your Hands.

Subjects YOU Have Expressed A Desire To Hear Will Be Discussed By These Leaders in Medical Thought:

Dr. Edgar G. Ballenger, Urology
Dr. Hans Barkan, Ophthalmology
Dr. Francis G. Blake, Medicine
Dr. Alan G. Brown, Pediatrics
Dr. Louis A. Buie, Proctology
Dr. William R. Cubbins, Orthopedics
Dr. C. Frederic Fluhmann, Gynecology
Dr. Verne C. Hunt, Surgery
Dr. Foster Kennedy, Neurology
Dr. B. R. Kirklin, Roentgenology
Dr. John A. Kolmer, Cutaneous Medicine
Dr. Walter A. Wells, Otolaryngology

All of these features will be housed in the Baker Hotel, official headquarters: General Assemblies and Afternoon Clinics—Daily Round Table Luncheons—Clinico-Pathological Conferences and Orthopedic Clinics by Guests—Evening Symposia by Guests on Eye, Ear, Nose and Throat, Gynecological and Acute Pulmonary Infections—Fifty-four Hours of Post-Graduate Lectures—A Public Meeting—A Mirthsome Clinic Dinner—Motion Pictures—Scientific and Technical Exhibits.

And as our Guest, you may golf DAILY at Lakewood Country Club, your best card to be considered in the awarding of trophies.

An All-Inclusive Fee of $10.00 enrolls you for the

Eighth Annual Spring Conference, March 16th-19th, 1936

DALLAS SOUTHERN CLINICAL SOCIETY

Secretary, 1414 Medical Arts Building DALLAS, TEXAS

DALLAS—TEXAS CENTENNIAL EXPOSITION CENTER—1936

When Signs Point to Gall-Bladder Dysfunction

GASTRO-INTESTINAL distress... transient abdominal pain ... or other vague clinical symptoms may indicate gall-bladder disease. In the diagnosis of cholecystic disorder, and as a prelude to every cholecystectomy, cholecystography is a necessary procedure.

The cholecystogram may be the deciding factor in the diagnosis and treatment of the case. It will reveal conclusive evidence if there is a non-functioning gall-bladder; will disclose stones in the gall-bladder and its ducts, or malformations that interfere with drainage.

Refer your patients with suspected gall-bladder disease or dysfunction to a radiologist. Cholecystography will fortify your diagnosis and preclude possible error by giving an accurate functional picture of the whole area.

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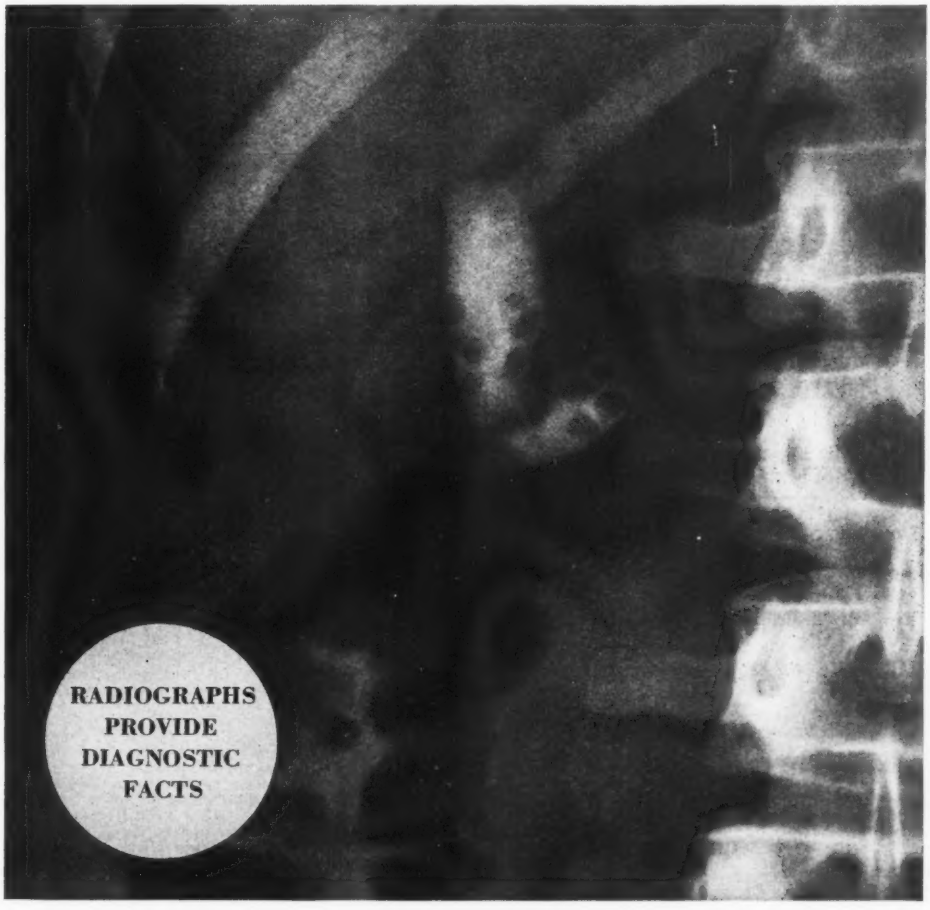

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Only qualified ophthalmologists and otolaryngologists will be accepted for this course.

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POSTGRADUATE instruction offered in all branches of medicine.

SPECIAL COURSES:

Otolaryngology and Ophthalmology—March 2 to March 14, 1936.

Surgery, Gynecology and Obstetrics—May 11 to June 6, 1936.

Tropical Medicine and Parasitology—June 15 to July 11, 1936.

COURSES leading to a higher degree are also given.

For bulletin furnishing detailed information address the

DEAN GRADUATE SCHOOL OF MEDICINE

1430 Tulane Avenue

New Orleans, La.

Continued from page 24

tions at its recent meeting in Geneva as one of an Executive Committee of ten.

The Medical Society of the District of Columbia had as guest speaker at a recent meeting Dr. Oswald Swinney Lowsley, New York, New York.

The Naval Medical Officers of the District of Columbia were addressed at their first regular monthly meeting by Dr. Walter Timme, New York, New York.

The Medical Society of the District of Columbia and the American Heart Association, in joint session, had as guest speaker Dr. Claude S. Beck, Cleveland, Ohio.

Dr. James S. McLester, Birmingham, Alabama, President of the American Medical Association, and Dr. James Tate Mason, Seattle, Washington, President-Elect of the American Medical Association, were guest speakers before the Medical Society of the District of Columbia at its meeting on November 22.

Deaths

Dr. Frank Wilmoth Gray, Washington, aged 42, died October 20 of bronchopneumonia.

Dr. Daniel Kerfott Shute, Washington, aged 76, died October 21 of arteriosclerosis and coronary thrombus.

FLORIDA

The Pineallas County Medical Society elected the following officers for the coming year: Dr. F. E. Kauffman, Clearwater, President; Dr. Robbins Nettles, Clearwater, First Vice-President; Dr. E. A. Heibner, St. Petersburg, Second Vice-President; Dr. W. C. McConnell, St. Petersburg, Secretary-Treasurer.

Dr. Edwin C. Swift, Jacksonville, has been made President of the Florida East Coast Medical Association.

Dr. Houston J. Banton, Captain, Medical Corps, U. S. Army, has been made a Deputy District Health Officer of the State Board of Health of Florida.

Dr. J. H. Pierpont, Pensacola, has been made District Surgeon of the Louisville and Nashville Railroad Company, succeeding Dr. F. G. Renshaw, deceased.

Dr. Frank V. Chappell, Jacksonville, has been appointed District Health Officer, State Board of Health.

Dr. James H. Pound, Chattahoochee, was a guest speaker before the Second District Medical Society in Thomasville, Georgia, recently.

Dr. Harry C. Galey, Jr., Key West, was recently elected Mayor of that city.

Dr. Leon H. O'Quinn, has been made Mayor of Hialeah.

Dr. George M. Green, Daytona Beach, and Miss Margaret Dunn, were married September 1.

Dr. Adolph E. Drexel, Palatka, and Miss Charlotte Leah Shipps were married November 6.

Deaths

Dr. Adrian Ramon Bustillo, Tampa, aged 36, died October 4.

Dr. Frank Gale Renshaw, Pensacola, aged 79, died September 11 of acute leukemia.

Dr. Bundy Allen Tampa, aged 50, died November 25 of injuries received in an automobile accident.

Dr. William Collins Pumpelly, Fort Pierce, aged 58, died recently.

GEORGIA

The Georgia Association of Pathologists elected the following officers for the coming year: Dr. E. L. Bishop, Atlanta, President; Dr. Roy R. Kracke, Emory University, Vice-President; Dr. T. F. Sellers, Atlanta, Secretary.

The Georgia Public Health Association elected the following officers for the coming year: Dr. C. O. Rainey, Camilla, President; Dr. W. W. Brown, Athens, Vice-President; Dr. M. E. Winchester, Brunswick, Secretary-Treasurer.

The Georgia Pediatric Society met in Atlanta, December 12.

The Seventh District Medical Association had as guest speakers at a recent meeting Dr. Verling K. Hart and Dr. George Aubrey Haws, Charlotte, North Carolina.

The Second District Medical Society had as guest speaker at a recent meeting Dr. James H. Pound, Chattahoochee, Florida.

Continued on page 28

The time proved

COD LIVER OIL VITAMINS

CONCENTRATED IN CONVENIENT ECONOMICAL

LIQUID — TABLETS — CAPSULES

Here are the vital therapeutic factors of that world recognized agent, cod liver oil, concentrated, as a result of original research, into convenient, palatable, economical forms suitable for every type of patient.

White's Cod Liver Oil Concentrate in Liquid, Tablet and Capsule form is 100 times the potency of cod liver oil* in **both** vitamins A and D. Furthermore, these natural vitamins are not fortified by materials from other sources, and are presented in the relationship of A to D characteristic of cod liver oil.

A Dosage Form to Suit Every Patient

LIQUID CONCENTRATE. Two drops equal the vitamin A and D potency of one teaspoonful of Cod Liver Oil*. Usual prescription price $1.00 for 240 drops (5cc.)—the equivalent of 120 teaspoonfuls of Cod Liver Oil*.

CONCENTRATE TABLETS. Each tablet equals the vitamin A and D potency of one teaspoonful of Cod Liver Oil*. Usual prescription price $1.00 for 100 tablets—equivalent of 100 teaspoonfuls of Cod Liver Oil*.

CONCENTRATE CAPSULES. Each capsule equals the vitamin A and D potency of 4½ teaspoonfuls of Cod Liver Oil*. Usual prescription price $1.00 for 24 capsules—the equivalent of 108 teaspoonfuls of Cod Liver Oil.*

Larger packages at even more economical prices.

*U.S.P.X. Revised 1934, 600 units vitamin A, 85 units vitamin D.

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113 NORTH 13th STREET NEWARK, NEW JERSEY

Continued from page 26

Dr. Frank M. Ridley, Jr., LaGrange, has been appointed to the State Board of Medical Examiners, succeeding Dr. B. T. Wise.

Dr. B. L. Shackelford and Dr. Jesse H. York, both of Atlanta, have been elected to fellowship in the American College of Surgeons.

The Georgia Urological Association met in Albany on October 24.

Dr. Charles H. Watt, Thomasville, has returned after taking postgraduate work at the Mayo Clinic, Rochester, Minnesota.

Dr. L. B. Dunn and Dr. M. J. Egan, both of Savannah, have returned after taking postgraduate work in surgery at the Massachusetts General Hospital, Boston.

Dr. and Mrs. J. E. Penland, Waycross, entertained the members of the Ware County Medical Society at dinner recently.

Dr. John A. Simpson, Athens, has opened offices in the Southern Mutual Building.

Dr. William K. Jordan, formerly of Macon, announces his association with Dr. W. M. Scott, Milledgeville.

Dr. E. A. Moody, formerly of Odum, has moved to Nahunta.

Dr. W. W. Sharpe, III, formerly of Ware Shoals, South Carolina, has opened offices in the Central Pharmacy, Alma.

Dr. J. C. Harris, formerly of Lilly, has moved to Oakfield.

Dr. R. G. Brown, formerly of Garfield, has moved to Waycross and will be on the staff of the Ware County Hospital.

Dr. Frank Kells Boland, Jr., and Miss Octavia Norfleet Riley, both of Atlanta, were married November 14.

Dr. Edgar Marvin Lancaster, Shady Dale, and Miss Jewel Moats were married recently.

Dr. Charles A. Eberhart, Atlanta, and Miss Avis Barr were married recently.

DEATHS

Dr. Robert M. Kuglar, Conley, aged 76, died October 8.

Dr. Marion Xerxes Corbin, Savannah, aged 69, died recently.

KENTUCKY

The Fifth District Medical Association elected the following officers for the coming year: Dr. B. T. Beetem, Bedford, President; Dr. L. T. Minish, Frankfort, Vice-President; Dr. Owen Carroll, New Castle, Secretary.

DEATHS

Dr. Jethra Hancock, Louisville, aged 60, died October 4.

Dr. Hazelton H. Stallard, Pikeville, aged 70, died September 24 of diabetic gangrene.

Dr. Carey E. Wamsley, Newport, aged 55, died recently.

Dr. Oscar Eugene Wright, Fairview, aged 63, died October 13 of carbolic acid poisoning.

Dr. Leonidas H. York, Louisa, aged 84, died recently of heart disease and mitral regurgitation.

Dr. James Henry Souther, Threeforks, aged 84, died October 3.

Dr. James Oliver Moore, Adams, aged 61, died October 6 of leukemia.

Dr. Hugh B. Sanders, Louisville, aged 76, died October 8 of coronary occlusion.

Dr. Winnifred Green, Louisville, aged 66, died October 4 of coronary occlusion.

Dr. Samuel Gordon Dabney, Louisville, aged 75, died October 15 of chronic nephritis.

LOUISIANA

The New Orleans Gynecological and Obstetrical Society had as guest speaker at a recent meeting Dr. Emil Novak, Baltimore, Maryland.

Dr. John H. Musser, New Orleans, was a guest speaker before the Pike County Medical Society in Mississippi recently.

Dr. Raymond H. Potts, New Orleans, was a guest speaker before the Issaquena-Sharkey-Warren Counties Medical Society at Vicksburg, Mississippi, at their meeting on November 2.

DEATHS

Dr. Wallace Eugene Miller, Mount Hermon, aged 50, died October 3 of diabetes mellitus and carbuncle of the neck.

Continued on page 30

ACID
RESISTANCE
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Hypertonic — Alkaline — Carbonated — Not Laxative

The years of experience with physicians who have used Kalak show that the use of a formula containing calcium, magnesium, sodium and potassium salts represents a correctly balanced solution. This is Kalak which, as such, aids in maintaining a balanced base reserve.

How Alkaline Is Kalak?

One liter of Kalak requires more than 700 cc. N/10 HCl for neutralization of bases present as bicarbonates. Kalak is capable of neutralizing approximately three-quarters its volume of decinormal hydrochloric acid.

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Readily ASSIMILABLE FAT -- an essential in FEEDING THE PREMATURE

IN a recent study of fat metabolism in infants, Holt, Tidwell and Kirk* report that olive oil showed the highest percent retention (95.1%) of all fats studied but one, olein (97.5%). These authors found the fat of SIMILAC (which is 20% olive oil) showed a better percent retention (92.6%) than butter fat (88.9%)—and as high a retention as breast milk fat (92.4%).

To quote these authors—"the differences in fat retention on these various fats as shown on normal infants are not great; for the normal infant it is probably immaterial whether he absorbs 85% or 95% of his fat intake. It seemed possible, however, that *in subjects who have difficulty in fat assimilation, such as premature infants, the observed small differences might become large differences. A few observations made on premature infants and twins have borne this out—.*"

The observations referred to covered only three prematures fed on different fats, but showed an average of 78.4% retention for olive oil as compared to only 52.5% retention for butter fat.

*Holt, Tidwell and Kirk, Studies on Fat Metabolism in Infants—Acta Pediatrica, Vol. XVI, 1933.

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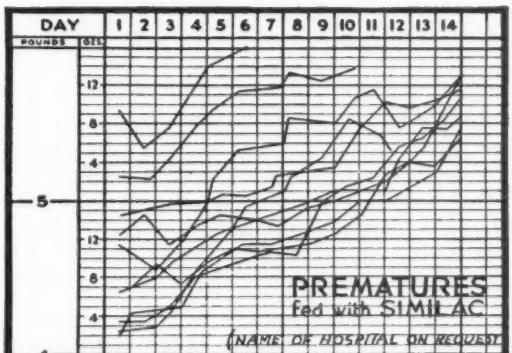
has given noticeably good results in feeding the premature infant. One of the reasons lies, as here pointed out, in the composition of its fat. Another reason is its consistently zero curd tension. The finer the curd the greater the surface area. The greater the surface area the more exposed are the fats, carbohydrates, proteins and salts to the digestive enzymes. Result . . . the food substances are more quickly and readily utilized.

SIMILAC is made from fresh skim milk (casein modified) with added lactose, salts, milk fat, and vegetable and cod liver oils.



ACCEPTED AMERICAN MEDICAL ASSN. Correspondence with Pediatrics

The fact that SIMILAC is well assimilated by the immature digestive tract of the premature indicates how entirely suitable it is for all those infants who are deprived of breast milk.

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Continued from page 28

MARYLAND

Dr. Alfred Charles Moore and Miss Margaret Wells, both of Baltimore, were married recently.

DEATHS

Dr. Harry Kepler Gorsuch, Baltimore, aged 66, died October 9 of angina pectoris.

Dr. Amos E. Parker, Baltimore, aged 86, died recently of bronchopneumonia.

Dr. Charles Edgar Benson, Kingsville, aged 55, died October 30 of phlebitis of the left leg.

MISSISSIPPI

The North Mississippi Medical Society elected the following officers for the coming year: Dr. R. G. Grant, Holly Springs, President; Dr. J. S. Donaldson, Oakland, Vice-President; Dr. A. H. Little, Oxford, Secretary.

The Delta Medical Society had as guest speaker before a recent meeting Dr. Carl Crutchfield, Nashville, Tennessee.

Dr. C. C. Buchanan, Hattiesburg, has returned after doing some special work in allergy in Oklahoma City, Oklahoma.

The Pike County Medical Society had as guest speaker before a recent meeting Dr. John H. Musser, New Orleans, Louisiana.

The Issaquena-Sharkey-Warren Counties Medical Society had as guest speaker at a recent meeting Dr. Raymond H. Potts, New Orleans, Louisiana.

Dr. William R. K. Beck, Jackson, has opened offices in the Standard Life Building.

Dr. H. L. Howard, formerly of New Albany, has opened offices in Indianola.

DEATHS

Dr. Lawrence S. Pearce, Falkner, aged 88, died September 18 of hypostatic pneumonia.

Dr. Wyatt C. Caraway, Forest, aged 78, died October 16.

Dr. James William Gray, Clarksdale, aged 70, died November 7.

Dr. J. H. Kennedy, Pinola, died October 7.

MISSOURI

The Frisco System Medical Association held its meeting in Joplin, October 28 and 29.

The Missouri Academy of Science held its annual meeting in Kansas City, October 24-26.

Dr. John R. Bruce, Marshfield, former County Physician, has been made Health Commissioner of Webster County.

The Jackson County Medical Society, Kansas City, had as guest speaker before a recent meeting Dr. Walter Freeman, Washington, D. C.

Dr. Emsley T. Johnson, Kansas City, was a guest speaker before the Colorado State Medical Society in Estes Park, Colorado, recently.

Dr. John R. Caulk, St. Louis, was a guest speaker at the Oklahoma City Clinical Conference, November 5.

Dr. Gustave A. Roy and Miss Gertrude R. Fearon, both of Kansas City, were married September 20.

DEATHS

Dr. William J. Gundelach, St. Louis, aged 67, died recently of chronic interstitial nephritis.

Dr. Joseph Perry Standley, St. Joseph, aged 66, died November 8 of injuries received in an automobile accident.

Dr. Allen Benson Clark, Joplin, aged 70, died September 15.

Dr. Frank Givens, Rutledge, aged 81, died recently of chronic myocarditis.

Dr. David M. Gibson, St. Louis, aged 88, died September 24 of heart disease.

Dr. Ira R. Marshall, Ironton, aged 72, died September 19 of nephritis.

Dr. Herbert Arthur Breyfogle, Kansas City, aged 57, died October 11 of coronary sclerosis.

NORTH CAROLINA

The North Carolina Eye, Ear, Nose and Throat Society, organized November 14, elected the following officers for the com-

Continued on page 32

Gain in Weight

In the feeding of the normal baby it is customary to use 6 level tablespoonfuls of Mellin's Food in preparing the daily mixture, which furnishes 150 calories in addition to the calories supplied by the milk.

The underweight baby requires food of a higher caloric value and is likely to respond with a prompt gain in weight if the source of the additional calories is largely *maltose, the predominating carbohydrate in Mellin's Food.*

Where a gain in weight is especially desired and it is deemed advisable to build up the caloric value of the daily intake by increasing the carbohydrate content, it is well to have in mind that maltose has a high point of assimilation and that Mellin's Food may be given in increasing amounts until the gain in weight is well established.

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Samples and literature sent to physicians upon request.

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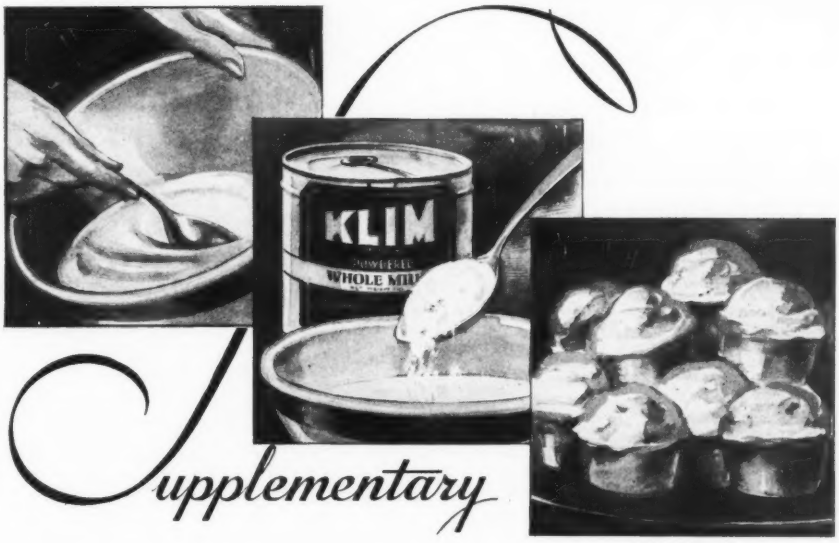

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Whole Milk . . . All the food value of whole cow's milk in only ⅛ the volume —that is KLIM. Mixed with ordinary dishes, each tablespoonful of KLIM adds 42 calories without appreciable effect on appearance, taste, or bulk.

Widely Adaptable . . . With KLIM the extra caloric needs of convalescence are easily supplied. No need to force sweetish, quickly cloying "invalid drinks". Simply add KLIM to almost any staple dish—patients will particularly appreciate the wide variety possible.

More Digestible . . . *Most important* this greater food value throws little extra burden on digestion, for KLIM is actually more digestible than fluid milk—*widely used for infant feeding.*

Send for copies of the booklet "Reinforced Diet Recipes", which shows how to prepare 70 common dishes with KLIM so as to provide 25% to 75% more food value.

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Cambridge, Mass. Cincinnati, Ohio Detroit, Mich.
St. Louis, Mo. St. Paul, Minn.
Dallas, Texas

Continued from page 30

ing year: Dr. Burton W. Fassett, Durham, President; Dr. James M. Lilly, Fayetteville, Vice-President; Dr. Casper W. Jennings, Greensboro, Secretary.

The Fifth District Medical Society elected the following officers for the coming year: Dr. A. Byron Holmes, Fairmont, President; Dr. O. L. MacFayden, Fayetteville, Secretary.

The Guilford County Medical Society had as guest speaker at its meeting on November 7 Dr. John Shelton Horsley, Richmond, Virginia.

The Tenth District Medical Society had as guest speaker at a recent meeting Dr. Olin B. Chamberlain, Charleston, South Carolina.

The Wayne Medical Society had as guest speaker at a recent meeting Dr. Edwin A. Merritt, Washington, D. C.

The Buncombe County Medical Society had as guest speaker before a recent meeting Dr. Edgar V. Allen, Rochester, Minnesota.

Dr. Fred M. Patterson, Greensboro, has been made President of the North Carolina Urological Association.

Dr. Ransom L. Carr, Rose Hill, was recently made Health Officer of Duplin County, succeeding Dr. Clarence H. White, Kenansville, resigned.

Dr. J. W. McLean, Godwin, has been made a member of the Cumberland County Board of Health, succeeding Dr. K. G. Averitt, Cedar Creek, deceased.

Dr. D. C. W. Ashburn has moved from Statesville to Lenoir.

Dr. Walter McMann has moved from Valdese to Danville, Virginia.

Dr. Clarence Hunt White, Burnsville, and Miss Mary Young Hunt were married October 24.

Dr. Lauten Rhodes Hedgpeth, Lumberton, and Miss Louise Hogan Muse were married November 7.

Dr. Frank Trumbo Harper, Jamestown, and Miss Gladys Virginia Duval were married recently.

Dr. William E. Selby, Charlotte, and Miss Sarah Elizabeth Norwood were married October 17.

Dr. Robert A. Gilreath, Hendersonville, and Miss Marie E. Hench were married recently.

Dr. Irma Carlens Henderson and Mr. William E. Smathers, both of Asheville, were married November 3.

Dr. William B. Burleson and Miss Amanda Elizabeth Godfrey, both of Plumtree, were married recently.

Dr. Lester L. Anderson and Miss Estelle Taylor, both of Stoneville, were married November 11.

DEATHS

Dr. George Junkin Gouger, Concord, aged 73, died recently of coronary thrombosis and pernicious anemia.

Dr. Albert Durham, Tuxedo, aged 71, died October 27 of heart disease.

Dr. Joseph Pinckney Turner, Greensboro, aged 64, died recently of a heart attack.

Dr. Oscar E. Underwood, Roseboro, aged 51, died recently.

Dr. A. McN. Blair, Southern Pines, aged 62, died recently.

OKLAHOMA

The Oklahoma Tuberculosis Society elected the following officers for the coming year: Dr. R. M. Shepard, Tulsa, President; Dr. Charles M. Pearce, Oklahoma City, Vice-President.

Dr. R. W. Stoner, Wetumpka, was recently named City Health Physician.

Dr. Carroll M. Pounders, Oklahoma City, was a guest speaker before the Panhandle District Medical Society at Plainview, Texas, October 15.

Dr. Edward D. Greenberger, formerly of New York, New York, has taken over the offices of the late Dr. J. C. Johnston, McAlester.

Dr. John D. Campbell, formerly of Duncan, has opened offices at Fairview.

Dr. W. L. Stephenson, formerly of Alva, has opened offices at Cheynne.

Dr. Henry Kirvin Speed, Jr., Sayre, and Miss Ruth Armstrong were married recently.

DEATHS

Dr. Thomas H. Shelton, Okmulgee, aged 64, died September 10 of chronic myocarditis.

Dr. William M. Hatfield, Mulhall, aged 77, died October 16.

Dr. Roy Mason Sweeney, Sapulpa, aged 52, died October 18 of carcinoma.

Dr. J. T. Moon, Miami, aged 49, died October 20.

Continued on page 34

DRYCO FORMULAS ASSURE PROTEIN SUFFICIENCY

Marriott observes*:

"When the protein content of the diet is insufficient, growth is slow, resistance to infection is decreased, the musculature becomes flabby, and secondary anemia develops."

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*Marriott, Williams McK., "Infant Nutrition," Second Edition, C. V. Mosby Co., 1935.

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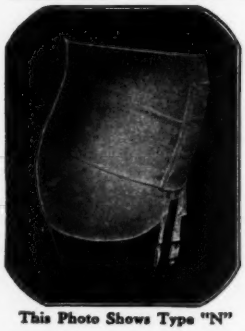

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Continued from page 32

SOUTH CAROLINA

Dr. Olin B. Chamberlain, Charleston, was a guest speaker before the Tenth District Medical Society in Tryon, North Carolina, October 16.

Dr. J. I. Waring and Mrs. Ferdi Legare Backer, both of Charleston, were married October 14.

DEATHS

Dr. Charles E. Stephenson, Columbia, aged 60, died October 6.

Dr. Waller Hunn Nardin, Anderson, aged 59, died October 7 of coronary thrombosis.

TENNESSEE

The Weakley County Medical Society elected the following officers for the coming year: Dr. J. A. Moore, Sharon, President; Dr. P. W. Wilson, Dresden, Secretary.

The East Tennessee Medical Association elected the following officers for the coming year: Dr. E. L. Caudill, Elizabethton, President; Dr. W. T. Mathes, Greeneville, Vice-President; Dr. H. A. Calloway, Maryville, Secretary-Treasurer.

Dr. H. L. Hawkins, Jackson, Dr. J. C. Pierce, Mercer, Dr. J. R. Thompson, Jackson, and Dr. R. L. Poindexter, Bemis, were recently elected to the Madison County Board of Health.

The Southeastern Branch Society of the American Urological Association met in Nashville, December 6-7.

The Knox County Medical Society had as guest speaker at a recent meeting Dr. E. R. Kellersberger, Bibango, Congo Belje, Africa.

Dr. Otis S. Warr, Memphis, was a guest speaker before the North Mississippi Medical Society, Oxford, Mississippi, October 18.

Dr. Carl R. Crutchfield, Nashville, was a guest speaker before the Delta Medical Society at Moorhead, Mississippi, October 9.

Dr. J. G. Wynne, Dr. P. E. Miller and Dr. A. C. Hays were recently elected to the Dyer County Board of Health.

Dr. Dick Cauthen McCool, Memphis, has opened offices in the Physicians and Surgeons Building.

Dr. Harold B. Damron, formerly of Beltsville, Maryland, has located at Elizabethton.

Dr. James J. Swin, Hartsville, and Miss Elsie Evins were married October 18.

Dr. William D. Burkhalter and Miss Alice Novella Graves, both of Nashville, were married October 3.

DEATHS

Dr. Morton Harley Lee, Bearden, aged 70, died October 3 of angina pectoris.

Dr. Samuel H. Harris, Nashville, aged 72, died September 23.

Dr. Robert Haller Newman, Knoxville, aged 55, died October 13 of chronic myocarditis.

Dr. Samuel Milan Kitchen, Nashville, aged 24, died recently of pneumonia, metastic septicemia and osteomyelitis.

TEXAS

The Texas Surgical Society elected the following officers for the coming year: Dr. C. W. Flynn, Dallas, President; Dr. G. V. Brindley, Temple, First Vice-President; Dr. Willard R. Cooke, Galveston, Second Vice-President; Dr. R. J. White, Fort Worth, Secretary; Dr. Elbert Dunlap, Dallas, Treasurer.

The Texas Eclectic Medical Association elected the following officers for the coming year: Dr. C. W. Morrow, Greenville, President; Dr. J. M. Jones, Dallas, and Dr. V. E. Duren, Mineral Wells, Vice-Presidents; Dr. H. H. Blankmeyer, Aransas Pass, Secretary.

The Texas Association of Obstetricians and Gynecologists had as guest speaker at their meeting December 7, Dr. Emil Novak, Baltimore, Maryland.

The Panhandle District Medical Society had as guest speakers at its meeting October 15-16, Dr. George D. Huff, San Diego, California; Dr. Nelson M. Percy, Chicago; Dr. Carroll M. Pounders, Oklahoma City, Oklahoma; and Dr. Ray M. Balyeat, Oklahoma City, Oklahoma.

Dr. George E. Martin, Robstown, is in Rochester, Minnesota, taking postgraduate work.

Dr. Paul K. Conner, Archer City, is taking postgraduate work in Chicago, Illinois.

Dr. Belo Stone, Robstown, has returned after taking postgraduate work in eastern clinics.

Dr. W. E. Ryan, Midland, is in Rochester, Minnesota, taking postgraduate work.

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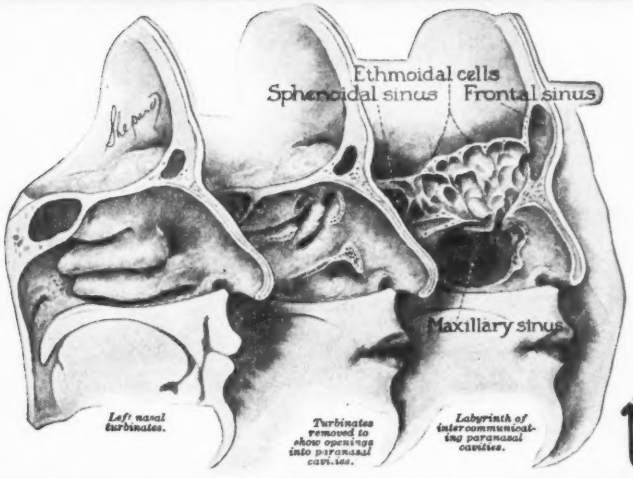
FREER BREATHING



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OUTSTANDING ADVANTAGES:

Active on repeated application.
More sustained action than epinephrine.
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No sting at point of application.

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SOLUTION	EMULSION	JELLY
¼% and 1%	¼%	½%—IN COLLAPSIBLE TUBES
ONE-OUNCE BOTTLES	ONE-OUNCE BOTTLES	with nasal applicator

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WINDSOR, CANADA SYDNEY, AUSTRALIA

Continued from page 34

Dr. Bailey R. Collins, Wichita Falls, has returned after studying in the East and Middlewest.

Dr. G. H. Fahring, Anuhuac, has been appointed Health Officer of Chambers County.

Dr. James P. Malloy, Jr., formerly of Chicago, Illinois, has located at Houston, where he is Director of the Houston Child Guidance Clinic.

Dr. W. E. Lowry, Jr., Laredo, was recented appointed Emergency Physician for the Laredo public schools.

Dr. George E. Bennack has moved from Raymondsville to Schulenburg.

Dr. Alton C. Bennett has moved from Hamilton to Marlin.

Dr. F. R. Copeland has moved from Dallas to Spur.

Dr. H. C. Eargle has moved from Brownwood to Dublin.

Dr. F. D. Garrett has moved from El Paso to Boerne.

Dr. Herman O. Lehman has moved from Amarillo to Canyon.

Dr. L. U. Lumpkin has moved from Houston to Union Level, Virginia.

Dr. Garland McPherson has moved from Apple Springs to Hillsboro.

Dr. R. S. Norris has moved from Sanatorium to Houston.

Dr. A. D. Patillo has moved from Wichita Falls to Ottine.

Dr. Don C. Peterson has moved from Austin to Flint, Michigan.

Dr. J. D. Simpson has moved from Texarkana to San Francisco, California.

Dr. R. G. Turner has moved from Shepherd to Jacksonville.

Dr. M. E. Weaver has moved from Oakhurst to Coleman.

Dr. R. D. Williamson has moved from San Antonio to Castroville.

Dr. James D. Wilson has moved from Temple to Marlin.

Dr. John S. Turner, Kerens, and Miss Macile Phillips were married recently.

Dr. Cecil A. Robinson, Gladewater, and Dr. Lila Rose Roberson were married October 6.

Deaths

Dr. James Allen Shackelford, Ranger, aged 48, died September 21 of coronary occlusion.

Dr. Nat King, Laredo, aged 60, died October 14.

Dr Charles Francis Payne, Dayton, aged 59, died October 11 of pneumonia.

Dr. Henry Tyus Cox, Groesbeck, aged 38, died recently of nephritis.

Dr. Edward H. Greene, Kerrville, aged 68, died December 19.

Dr. Edward F. Beall, San Marcos, aged 72, died October 6.

VIRGINIA

Dr. Vincent W. Archer University, has been appointed a member of the Council of the Southern Medical Association from Virginia for a regular Council term of five years, the appointment having been announced recently by the President, Dr. Fred M. Hodges, of Richmond. Dr. Archer succeeds Dr. R. Finley Gayle, Jr., of Richmond, who, having served the constitutional limit, was not eligible for reappointment.

The Virginia Urological Society elected the following officers for the coming year: Dr. Joseph F. Geisinger, Richmond, President; Dr. Charles J. Devine, Norfolk, Vice-President; Dr. Linwood D. Keyser, Roanoke, Secretary.

The Virginia Pediatric Society elected the following officers for the coming year: Dr. Basil B. Jones, Richmond, President; Dr. John S. Weitzel, Richmond, Vice-President; Dr. W. Ambrose McGee, Richmond, Secretary.

The Petersburg Medical Faculty elected the following officers for the coming year: Dr. William A. Reese, President; Dr. W. Allen Barker and Dr. Mason Romaine, Vice-Presidents; Dr. Wilbur M. Bowman, Secretary-Treasurer.

The Northern Neck Medical Association elected the following officers for the coming year: Dr. Lee S. Liggan, Irvington, President; Dr. M. C. Odham, Lancaster, and Dr. C. Y. Griffith, Mount Holly, Vice Presidents; Dr. E. T. Ames, Montross, Secretary-Treasurer.

The Culpepper County Medical Society elected the following officers for the coming year: Dr. D. W. Kelly, Jr., Culpepper, President; Dr. J. E. Parks, Brandy, Vice-President; Dr. O. K. Burnette, Culpepper, Secretary-Treasurer.

Dr. Thomas B. Payne has been made Health Officer of Fredericksburg, succeeding the late Dr. Justus Lee Cooke.

Dr. Linwood Farley, formerly of Abingdon, has been appointed

Continued on Page 38

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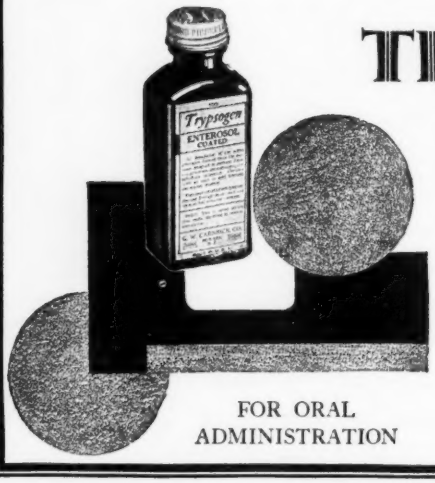

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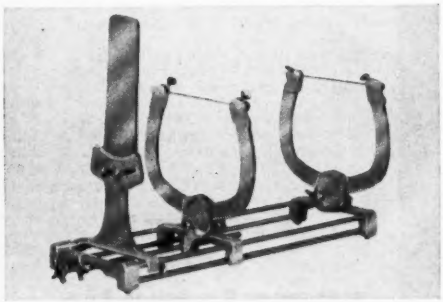

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And in other Persistent Coughs

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Cuts short the period of the illness, reduces the frequency of the attacks, relieves the distressing cough and gives the child rest and sleep.

Also valuable in Bronchitis and Bronchial Asthma

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Doctor, try this Golden Elixir.

NOTE—An interesting booklet on "Gold in the Treatment of Whooping Cough and Other Diseases" is just off the press and may be had on request. Drop us a card.

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Continued from page 36

Health Officer of the Hanover County Health District, with headquarters at Ashland.

Dr. W. R. Williams, Richlands, has been made a member of the State Board of Health to succeed Dr. Joseph A. McGuire, deceased.

Dr. Shockley D. Garner, South Boston, was recently made Health Officer of the Valley Health District with headquarters in Harrisonburg.

Dr. William Grossman, Jr., Petersburg, has been made Assistant Epidemiologist in the State Department of Health.

Dr. Ennion S. Williams, Richmond, has been made Assistant Medical Director of the Life Insurance Company of Virginia.

Dr. Carrington Williams, Richmond, was elected Secretary of the English-Speaking Union at its meeting in November.

Dr. James N. Dudley, Danville, has been made Director of the Henrico Health District.

Dr. B. J. Atkinson, Emporia, has been elected a member of the Emporia Chamber of Commerce.

Dr. John Shelton Horsley, Richmond, was a guest speaker before the Guilford County Medical Society at High Point, North Carolina, on November 7.

Dr. John T. Hazel, formerly of Boston, Massachusetts, has located at Clarendon.

Dr. Ernest Buxton, formerly of Atlanta, Georgia, has located at Richmond.

Dr. N. P. Fitts, formerly of Maurertown, has located as Strasburg.

Dr. J. Dean Creger, formerly of Richmond, has located at St. Paul.

Dr. Ralph W. Jack announces his association with Dr. Thomas G. Hardy, Farmville.

Dr. William D. Suggs and Miss Grace Lorraine, both of Richmond, were married November 2.

Dr. Thomas Stanley Mead and Miss Mary Bell Long, both of Richmond, were married November 7.

Dr. Jethro Meriwether Hurt, Blackstone, and Miss Margaret Virginia Bennett were married November 6.

Dr. Herman Harrison Braxton, Chase City, and Miss Ann Norfolk Grimm were married recently.

Dr. Beverly Wilkins Nash and Miss Frances Lucille Bowers, both of Timberville, were married September 1.

Dr. Frank Read Hopkins and Miss Nancy Scott Adams, both of Lynchburg, were married in September.

DEATHS

Dr. Joseph Edward Clagett, Hamilton, aged 55, died October 26 of angina pectoris.

Dr. Robert Lee Nance, Bedford, aged 29, died October 13 of acute tonsillitis and pulmonary embolus.

Dr. Joseph Albert McGuire, Norton, aged 59, died October 25.

Dr. Charles Marion Rains, Bohannon, aged 77, died October 27.

Dr. Joseph Edward Taylor, Danville, aged 63, died October 24.

WEST VIRGINIA

The Grant-Hardy-Hampshire-Mineral Counties Medical Society elected the following officers for the coming year: Dr. T. C. Giffin, Keyser, President; Dr. Paul R. Wilson, Piedmont, Secretary-Treasurer.

Dr. Americus J. Kemper, Clarksburg, has been elected President of the West Virginia Public Health Association.

Dr. Simon B. Chandler, formerly of Chicago, has been appointed Professor and Head of the Department of Anatomy of the University of West Virginia School of Medicine, Morgantown.

Dr. Gilbert O. Crank, formerly of Charleston, has moved to Lawton.

The Ohio County Medical Society had as guest speaker at a recent meeting Dr. Richard B. Cattell, Boston, Massachusetts.

The Cabell County Medical Society had as guest speaker at its meeting on October 10 Dr. William J. Engel, Cleveland, Ohio.

The Fayette County Medical Society had as guest speaker at a recent meeting Dr. William Wayne Babcock, Philadelphia, Pennsylvania.

The Ohio County Medical Society had as guest speaker at its meeting on October 11 Dr. William F. Rienhoff, Jr., Baltimore, Maryland.

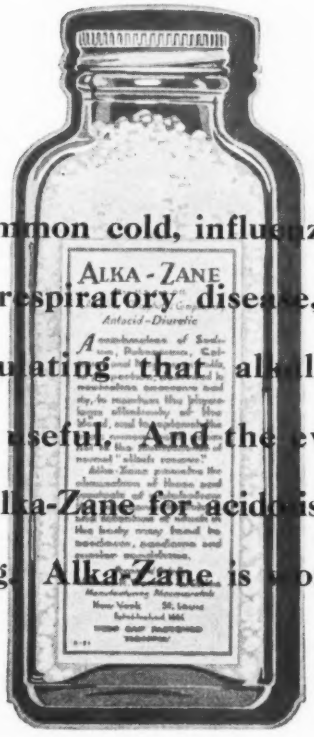
Dr. John M. Brand, Spencer, and Miss Mary Colebank, were married November 2.

DEATHS

Dr. Fred Xenophon Lilly, Jumping Branch, aged 59, died September 21 of injuries received when struck by an automobile.

Dr. Cyrus Maxwell Boger, Parkersburg, aged 74, died September 2.

The Evidence is Accumulating



In the common cold, influenza, in fact, in every respiratory disease, evidence is accumulating that alkalization is definitely useful. And the evidence in favor of Alka-Zane for acidosis is equally convincing. Alka-Zane is worth trying.

Alka-Zane is a granular, effervescent salt, composed of sodium, potassium, magnesium and calcium phosphates, carbonates and citrates. Average dose: one teaspoonful in a glass of water. Supplied in 1½, 4 and 8 ounce bottles.

Literature and trial supplies gladly sent to physicians.

WILLIAM R. WARNER & CO., INC., 113 West 18th Street, New York City

A Poor Scholar . . . because of a Poor Breakfast

"TOMMY, that's the third time this week you haven't learned your lesson. Why don't you listen to me when I tell you how to work the problems?"

MANY a child is scolded for dullness when he should be treated for undernourishment. In hundreds of homes a "continental" breakfast of a roll and coffee is the rule. If, day after day, a child breaks the night's fast of twelve hours on this scant fare, small wonder that he is listless, nervous, or stupid at school.

Pablum offers a happy solution to the problem of the school-child's breakfast. Mothers who learn about Pablum from their physicians are delighted to serve it for it needs no cooking and can be prepared in a minute at the table—more quickly than many less nourishing foods. Pablum not only ends the bane of long cooking of cereals but in addition furnishes a variety of minerals (calcium, phosphorus, iron, and copper) and vitamins (A, B, G, and E) not found so abundantly in any other cereal.

PABLUM is rich in calcium and iron, minerals likely to be deficient in the school-child's diet yet needed in more than average amounts during childhood. Pablum is 6 times richer than fluid milk in calcium and contains 10 times more iron than does spinach. It also furnishes generous amounts of vitamins B and G, essential for normal appetite. Unlike other cereals, Pablum is base-forming, important because the growing child needs to store alkali. The nutritional value of Pablum is attested in studies by Crimm *et al* who found that tuberculous children receiving supplements of Pablum showed greater weight-gain, greater increase in hemoglobin, and higher serum-calcium values than a control group fed farina. Reprint sent on request of physicians. Mead Johnson & Company, Evansville, Ind., U.S.A.

Pablum (Mead's Cereal thoroughly cooked) is a palatable cereal enriched with vitamin- and mineral-containing foods, consisting of wheatmeal, oatmeal, cornmeal, wheat embryo, alfalfa leaf, beef bone, brewers' yeast, iron salt, and sodium chloride.

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Experience . . . Facts . . . Proofs . . . of DEXTRI-MALTOSE Value

Continued down from 1911

1934

In fermentative diarrhea, "Sugar is usually added beginning at one per cent. or dextrimaltose may be used and later barley gruel may take the place of the plain water."—*J. Ruhrah: The acute diarrheas of early life, in F. Tice: Practice of Medicine, vol. 7, W. F. Prior Co., Hagerstown, Md., 1934, p. 708.*

1934

"In many infants, milk sugar acts as a laxative, but unless the laxative effect is desirable, it has no advantages. Maltose and dextrin compounds are of practical value when large amounts of cane or milk sugar are not well taken. Because of their varying maltose, dextrin, and alkali content, some compounds are constipating and others are laxative. This must be given due consideration in their selection."—*J. H. Hess and H. G. Poncher: Direct and indirect artificial irradiation in the care of children, in Principles and Practice of Physical Therapy (edited by R. Pemberton), W. F. Prior Co., Inc., Hagerstown, Md., 1934, vol. 1, Chapter 11, p. 19.*

1934

"Whole lactic acid milk, with the addition of 1 ounce (by weight) of dextrimaltose to 10 ounces of milk, is a serviceable formula for premature infants."—*N. B. Capon: The newly born baby, in Diseases of Children (edited by A. E. Garrod, F. E. Batten, H. Thursfield and D. Paterson), ed. 3, William Wood & Co., Baltimore, 1934, p. 105.*

1934

In acute infective diarrhea, "Sugar is less easily dealt with, although an unfermentable sugar, such as maltose, is preferable to dextrose or lactose from this point of view."—*R. Miller: Diseases of the intestinal tract, in Diseases of Children (edited by A. E. Garrod, F. E. Batten, H. Thursfield and D. Paterson), ed. 3, William Wood & Co., Baltimore, 1934, p. 228.*

1935

"We do not feed breast milk at all to the babies of toxemic mothers, tuberculous mothers, mothers with heart complications, and such types. They are fed a formula because the babies, within a short time, will have to be accustomed to a formula. There has been no greater death rate among the formula-fed babies than there has been among the breast-fed babies. When we know that a baby of a toxic mother will eventually get on to the breast, it is fed on fortified breast milk, with 2 to 3 per cent of carbohydrate in the form of dextrimaltose, dextrin, etc., added."—*E. W. May: Round table discussion on prematurity, J. Pediat. 6:118, Jan. 1935.*

1935

"If the stools are acid, green, and excoriating, a food high in protein and low in fat, and carbohydrate is indicated. Dried powdered protein milk is very ideal here—one to ten dilution. On the other hand, if the evacuations are brown, watery, and stinking with putrefactive odors, a proteolytic diarrhea, it will be of advantage to add a small amount of carbohydrate, a dextrimaltose preparation being very efficacious."—*A. G. Dow: Diarrheas in infants, Nebraska M. J. 20:22-24, Jan. 1935.*

1935

"Pure dextrimaltose sugars are nonanaphylactogenic."—*B. Ratner and A. H. Gruehl: Anaphylactogenic properties of malted sugars and corn syrup, Am. J. Dis. Child 49:307-317, Feb. 1935.*

1935

In sugar indigestion, "To correct this it is only necessary to withhold all sugars and starches for a few days until the fermentation and acid stools disappear. A normal amount of sugar may be gradually added up to the point of tolerance. Malt sugar, for reasons already laid down, is preferable."

"Pure maltose is hard to obtain and the expense precludes its general use. When malt sugar is mentioned a combination of maltose and dextrins is always meant. There are many different brands, each having a different proportion of maltose and dextrins. The dextrins are higher sugars (polysaccharides) and are digested into the disaccharides or maltose, which are eventually split up into dextrose. Some of the chief advantages of dextri-maltose are due to the dextrins. They are not broken down in the stomach. In the intestinal tract they have so many stages of digestion that no great amount of sugar is formed at any one time, thus giving more time for absorption. A higher proportion of malt sugar can be used than of any other sugar, even 10 per cent to 12 per cent. If vomiting should be induced, the intestinal tract is not usually irritated and the higher proportions may be reduced without any lasting disturbance. They are especially useful in feeding infants recovering from intestinal upsets, as they can be used when other sugars seem to disturb."—*J. B. Cowherd: Infant feeding, in Methods of Treatment (by L. Clendening), ed. 5, C. V. Mosby Co., St. Louis, 1935, pp. 356, 365.*

1935

In dyspepsia, "The buttermilk (freshly prepared or cultured) is best given immediately with 3 to 5 per cent dextrimaltose and 3 per cent flour (corn, potato, rice, or wheat)."

"The lactic acid whole milk has an excellent effect on mildly dystrophic infants and has been proven a calory-rich therapeutic food. To 100 Gm. whole milk is added 2 Gm. fine maize flour, 6 Gm. dextri-maltose and 6 per cent lactic acid =97 calories."—*E. Rominger: The nutritional disturbances of infants, in The Diseases of Children (by M. Pfaundler and A. Schlossmann, English translation) J. B. Lippincott Co., Phila., 1935, vol. 4, pp. 102, 187.*

1935

In the treatment of dysentery, "As a useful supplement, Bessau's thick rice water with 1 to 5 per cent dextrimaltose may be used, or soy bean milk, which also may serve as main nourishment in the rare cases of hypersensitiveness to cow's milk."—*O. Willner: Dysentery, in The Practitioner's Library of Medicine & Surgery, D. Appleton-Century Co., New York, 1935, vol. 7, p. 371.*

1935

In celiac disease, "Certain carbohydrates have been found to supply the caloric needs without producing the foamy stools occasionally seen when starch is given. They are ripe bananas, glucose and dextrimaltose."

"During the periods of severe diarrhea and vomiting the diet may have to be limited to skimmed milk, glucose, dextrimaltose and fruit juices."—*D. C. Darrow: Steatorrhea, in The Practitioner's Library of Medicine & Surgery, D. Appleton-Century Co., New York, 1935, vol. 7, p. 390.*

(to be continued)

When More Physicians Specify MEAD'S, More Babies Will Be Fed By Medical Men

It is interesting to note that a fair average of the length of time that an infant receives Dextri-Maltose is five months: That these five months are the most critical of the baby's life: That the difference in cost to the mother between Dextri-Maltose and the very cheapest carbohydrate at most is only $6 for this entire period—a few cents a day: That, in the end, it costs the mother less to employ regular medical attendance for her baby than to attempt to do her own feeding, which in numerous cases leads to a seriously sick baby eventually requiring the most costly medical attendance.

MEAD JOHNSON & COMPANY, Evansville, Indiana, U.S.A.

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"Gentlemen, it is with pride in our profession that I tell you of my difficulty in getting clinical material to illustrate our discussion of rickets today. Twenty years ago . . . "

THE above picture was suggested by a situation arising at a recent medical meeting attended by thousands of physicians. Their comments revealed a country-wide decrease in the incidence and severity of rickets, the result of clinical application of modern developments in the science of nutrition.

Three minims of Haliver Oil with Viosterol, in a tasteless gelatin capsule, or delivered from a dropper, provide at least as much vitamin A and vitamin D as four teaspoonfuls of Cod-Liver Oil (minimum standards U. S. P. X revised 1934).

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Parke-Davis Haliver Oil with Viosterol is available in 5-cc. and 50-cc. amber bottles with dropper, and in boxes of 25, 100, and 250 three-minim gelatin capsules.

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